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2024

NAVIGATING DEMENTIA

Exploring Medical and Non-Medical Interventions to Slow Cognitive Decline

RESOURCE BOOK

FOR AGING SERVICES PROFESSIONALS & CAREGIVERS

Funded by a generous grant
from the Maryland Department of Aging

Maryland DEPARTMENT OF AGING

UNIVERSITY of MARYLAND GRADUATE SCHOOL
Geriatrics and Gerontology Education and Research

WEBINAR & IN-PERSON* SESSIONS

MARCH 1 1-3 PM
CHANGES IN MEMORY

MARCH 8 1-3 PM
THE DEMENTIAS

***MARCH 22 9-4 PM**
COMMUNICATION

APRIL 19 1-3 PM
INTERVENTIONS

APRIL 24 9-2 PM
SERVICES & SUPPORTS

***MAY 10 9-4 PM**
ASSESSMENT & REFERRALS

MAY 24 1-3 PM
MARYLAND RESOURCES

*The Meeting House, Columbia, MD

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Spring 2024 "Navigating Dementia" Education Series

Description: The Geriatrics & Gerontology Education and Research (GGEAR) program at University of Maryland, Baltimore, with generous support from the Maryland Department of Aging, is pleased to announce our new professional development and community education program entitled "**Navigating Dementia.**" Alzheimer's disease and related dementias (ADRD) represent a growing public health crisis. Across Maryland, there are an estimated 110,000 individuals aged 65 and older living with ADRD and nearly 240,000 unpaid family members providing care to these individuals. Recognizing the unique needs of these groups, GGEAR is hosting a series of five webinars and two in-person conferences that are FREE and open to the public.

The "Navigating Dementia" educational series is intended for Aging Services professionals, caregivers of persons living with ADRD, and anyone with an interest in matters concerning older adults. The series will provide valuable knowledge, resources, and support on topics related to aging, cognitive health, dementia care, and caregiving in Maryland.

Overall objectives:

1. Advance personal understanding of dementia;
2. Formulate realistic expectations based on effects of dementia on persons living with ADRD and their caregivers;
3. Demonstrate confidence in interactions which reflects evidence-based, unbiased, culturally sensitive approaches to care; and
4. Create meaningful living opportunities for adults living with Alzheimer's disease or a related dementia in Maryland.

Webinar : Friday, April 19, 2024

(1:00pm-3:00pm; check-in begins at 12:30pm)

Title: Exploring Medical and Non-medical Interventions to Improve Cognition, Well-Being and/or Slow Cognitive Decline Associated with ADRD

Description: This live, interactive webinar will introduce participants to the array of interventions recognized and/or designed to improve outcomes associated with irreversible causes of dementia.

Objectives:

1. Learn about some evidence-based non-drug strategies to improve cognition, well-being, and /or slow cognitive decline, as well as the details about pharma-based options currently in use;
2. Describe the benefits and limits of these interventions for both the person and care partners, and the timing of when an intervention is best offered;
3. Understand the broader societal impact of interventions in terms of measures of well-being, usefulness, and costs.

UNIVERSITY of MARYLAND GRADUATE SCHOOL
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Maryland DEPARTMENT OF AGING

TODAY'S PRESENTERS

James Richardson, MD, MPH was Chief of Geriatric Medicine at Ascension Saint Agnes Hospital in Baltimore Maryland from 2008 until December 2023. His professional interests include inpatient and outpatient geriatric medicine consultation for older adults with problems such as memory loss and dementia, frailty, weight loss, falls, depression, and health promotion. A graduate of the University of Maryland Baltimore County and the University of Maryland School of Medicine, Dr. Richardson completed a residency in Family Medicine at the University of Maryland. After completing a two-year commitment in North Carolina in the National Health Service Corps, Dr. Richardson joined the faculty at the University of Maryland School of Medicine, rising to the rank of Professor. He is now an Adjunct Professor of Family Medicine at the University.

Dr. Richardson also completed a Master of Public Health degree at the Johns Hopkins University School of Hygiene and Public Health in 1995. Dr. Richardson left the University to serve as Chief of Geriatric Medicine at Good Samaritan Hospital and Union Memorial Hospital before joining Saint Agnes Hospital in 2008. He has published more than 65 peer reviewed articles and book chapters and has lectured widely to both professional and lay audiences on topics such as geriatric medicine, memory loss, infections, falls, and delirium. He is Board Certified in Family Medicine, Geriatric Medicine, Hospice and Palliative Medicine, and General Preventive Medicine.

Nicole Brandt, PharmD, MBA, BCGP, BCPP, FASCP is a professor in the Department of Practice, Sciences, and Health Outcomes Research and executive director of the Peter Lamy Center on Drug Therapy and Aging at the University of Maryland School of Pharmacy (UMSOP).
Since joining UMSOP, she has expanded geriatric training opportunities available, including the geriatrics/palliative care pathway, American Society of Health-System Pharmacists-accredited geriatrics residency, and two-year post-PharmD fellowship. She was named the 2019 recipient of the American Geriatrics Society's Dennis W. Jahnigen Memorial Award for her leadership in geriatrics education. She has worked on various interdisciplinary teams across numerous practice settings and is currently leading initiatives to integrate sustainable pharmacist-directed services to help older adults with multiple co-morbidities at the MedStar Center for Successful Aging.

Brandt has been active in promoting optimal care for older adults and has affected this through her educational, clinical, and health care policy work. She co-led an initiative that led the University of Maryland, Baltimore and University of Maryland, Baltimore County to become the first universities in the state of Maryland to receive the Age-Friendly University distinction.

She has directed projects with multiple stakeholders focusing on Medicare Part D Medication Therapy Management programs, high risk medications, and medication stewardship. Her public policy advocacy occurs on both a state and national level. She is one of the authors of the 2012, 2015, and 2018-2019 American Geriatrics Society Beers Criteria and the past president and board chairman of the American Society of Consultant Pharmacists.

She also co-chaired a task force convened by the Peter Lamy Center with assistance from the U.S Deprescribing Research Network to develop an Implementation Guide for Post-Acute and Long-Term Care during the COVID-19 pandemic.

LET'S TALK ABOUT INTERVENTIONS

It is time to debunk common myths or misconceptions about how to address cognitive decline. Get ready to become an expert!

MYTH: Current research to develop interventions for dementia is limited.	ACTUALLY… We're making progress towards developing better treatments. Hundreds of studies are being funded today, including both drug (pharm) and non-drug (non-pharm) interventions. Some are testing treatments which target the underlying cause of the disease, and some are investigating lifestyle factors.
MYTH: Medications are the most effective option we have right now.	CONSIDER THIS: Alzheimer's drugs hold promise, but they still need additional research and improvement. *Non-drug* therapies can work effectively, are safe, inexpensive, can be used with groups of people at one time rather than just one person, and generally don't have side effects.
MYTH: The effectiveness of non-drug therapies is unproven.	WHAT WE KNOW~ Non-pharmacological treatments (NPTs) have the potential to improve meaningful outcomes for older people at risk of, or living with dementia, but research often lacks methodological rigor and may produce mixed results. Sometimes insurance may not cover these approaches to care, and so they are not offered.
MYTH: Science has this all figured out, right?	"NOT YET" Results of many NPT studies show improvements on tests but not in everyday life. A global network of researchers has recently developed approaches to *consistently* describe treatment targets, aims, and ingredients using an umbrella framework: the Rehabilitation Treatment Specification System (Sikkes et al., 2021). It's a recipe for success!
MYTH: The benefits of any intervention are specific to that person.	BUT THERE'S MORE! Care partners show gains in quality of life and confidence as well. Also, a Brown-led research team used a computer simulation to show that compared to usual care, four dementia-care interventions saved up to $13,000 in costs and helped people to stay in their homes (Jutkowitz et al., 2023).

LET'S LEARN MORE

Exploring Medical and Non-medical Interventions to Improve Cognition, Well-Being and/or Slow Cognitive Decline Associated with ADRD Note-Taking Guide

Use this guide to help your brain process the information in the webinar and retain it more effectively! Take time to add your own notes and comments.

Dr. Richardson's presentation:
What are some non-medical approaches to dementia care?

When should a person learn more about these options?

Why would a person choose these approaches – what are the benefits?

Where would one find these services offered?

Compare the risks for a person who chooses a non-medical intervention vs. usual care (not specific to dementia):

What are other benefits of non-medical interventions (for the care partners, for society)?

Dr. Brandt's presentation:

What are ways to improve cognition using medical approaches to care?

Why would a person choose these approaches – what are the benefits?

Where would one find these medical approaches offered?

Compare the risks for a person who chooses a medical intervention vs. usual care (not specific to dementia):

What are other benefits of medical interventions (for the care partners, for society)?

What questions do you have for the presenter?

How will you use this information, both personally and/or professionally?

Maryland State Plan to Address Alzheimer's Disease and Related Dementias: 2022-2026

Pursuant to Health-General Article, §13-3207, Annotated Code of Maryland, and Chapters 410 and 411 of the Acts of 2019

Find out more about the plan here: FINAL_2021.ADRD.state.plan.docx (maryland.gov)

Dementia Care and Treatment

Currently there are no pharmacological treatments available to slow or stop the progression of most dementias, which makes these conditions fatal. Five drugs approved by the US Food and Drug Administration (FDA) for the treatment of AD include: rivastigmine, galantamine, donepezil, memantine, and memantine combined with donepezil. These drugs temporarily relieve the cognitive symptoms of dementia but have relatively modest impacts on certain outcomes, are time limited, and benefits vary by individual.

Exact causes of brain cell death and neurodegeneration in AD are not fully understood, though amyloid plaques are a marker of the disease and a potential contributor. Several anti-amyloid monoclonal antibody treatments are currently under development, as are several other novel therapeutics, but additional research is needed to validate clinical benefit of these treatments. As new treatments with proven clinical effectiveness emerge, access to specialty care, affordability of medications, and disparities in access and affordability will increase in importance.

There are no drug therapies specifically approved by the FDA to treat the neuropsychiatric symptoms associated with dementia, however, if non-pharmacological approaches are unsuccessful, drugs such as antipsychotics may be used to treat symptoms such as agitation, aggression, and psychosis. It is strongly recommended that antipsychotics be used as a last resort as these drugs are associated with serious adverse events such as death and stroke in persons with dementia. It is generally recommended that individuals and caregivers discuss potential medications with their health care providers to ensure they are appropriate for the stage and type of dementia.

A range of evidence-based non-pharmacological intervention options exists to address neuropsychiatric/behavioral symptoms, function, quality of life, and caregiver coping, skill-building, well-being, and burden. The different types of interventions include lifestyle (e.g., exercise, social activities), psychosocial, psychoeducational, cognitive stimulation, behavioral, skill building, and meaningful activity-based. Examples of evidence-based programs currently in practice include Resources for Enhancing Alzheimer's Caregiver Health (REACH), New York University Caregiver Intervention, Reducing Disability in Alzheimer's Disease (RDAD), Savvy Caregiver Program, STAR-Caregivers (STAR-C) (also known as the Seattle Protocols), and Tailored Activity Program (TAP). 84–90 Overall, evidence supporting the effectiveness of such programs is growing and the magnitude of the intervention benefit may vary by outcome. The most effective non-pharmacological options for neuropsychiatric symptoms appear to be behavior management techniques, environmental modifications, structured activities, and caregiver skills training and education. For optimal quality of life, social connection, activities, environmental modifications, and caregiver coping strategies and communication skills interventions appear to work best. Respite care, cognitive behavioral therapy, and problem-solving interventions appear to work best when the desired outcome of interest is reduction of caregiver burden and improving caregiver well-being. The evidence base for the use of other types of integrative and complementary interventions such as music, arts-based, and equine therapy interventions is growing.

Despite the existence of effective care options, the reality is that PLWD and their families rarely receive dementia care as a comprehensive, coordinated set of services. Medical organizations and best practice guidance support the integration and coordinated use of evidence-based approaches (including combinations of both non-pharmacological and pharmacological) to maximize effectiveness on outcomes. Care coordination and care management approaches are a tool to create effective dementia care "pathways."

Most management models include a comprehensive assessment of care needs for both the person living with dementia and their family caregiver, individualized care planning that is linked to appropriate evidence-based interventions, help facilitating or coordinating needed care or support services, referrals to resources, regular monitoring, as well as education, emotional support, and services for family caregivers. Given that most PLWD live in the community, the availability, delivery, and affordability of home and community-based services are a critical aspect of the LTSS system.

Citations for all this information are available within the Plan document.

Key Points:

● ADRD is very common and the prevalence in Maryland will increase substantially over the next several decades.

● Risk reduction or prevention of ADRD in later life may be possible by taking a life course approach to public health and by addressing modifiable risk factors.

● Dementia is a highly stigmatized group of conditions and continues to be under-detected and under-diagnosed.

● ADRD is strongly associated with high health care and long-term care costs and with high burden for individuals and families.

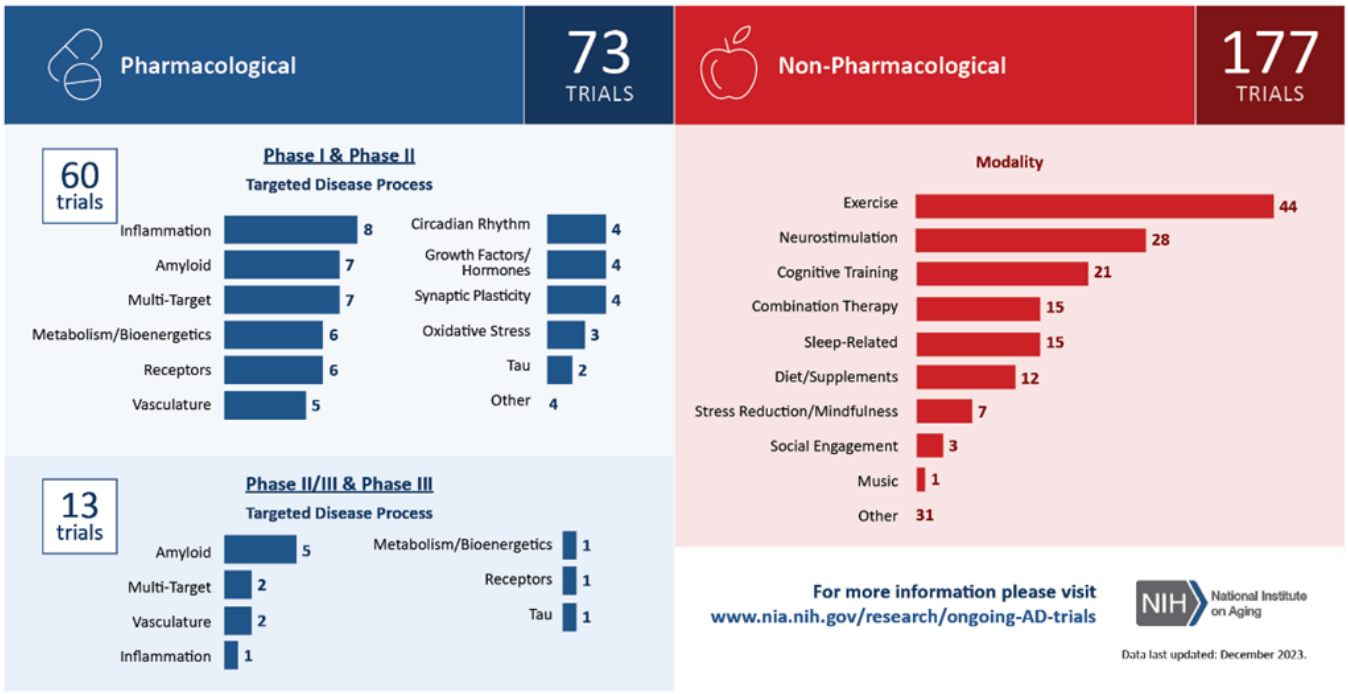
● People belonging to minority groups, women, and those living in poverty are disproportionately affected by ADRD and have significantly more health care disparities and worse outcomes.

● Currently there are no pharmacological treatments available to slow or stop the progression of most dementias, which makes these conditions fatal.

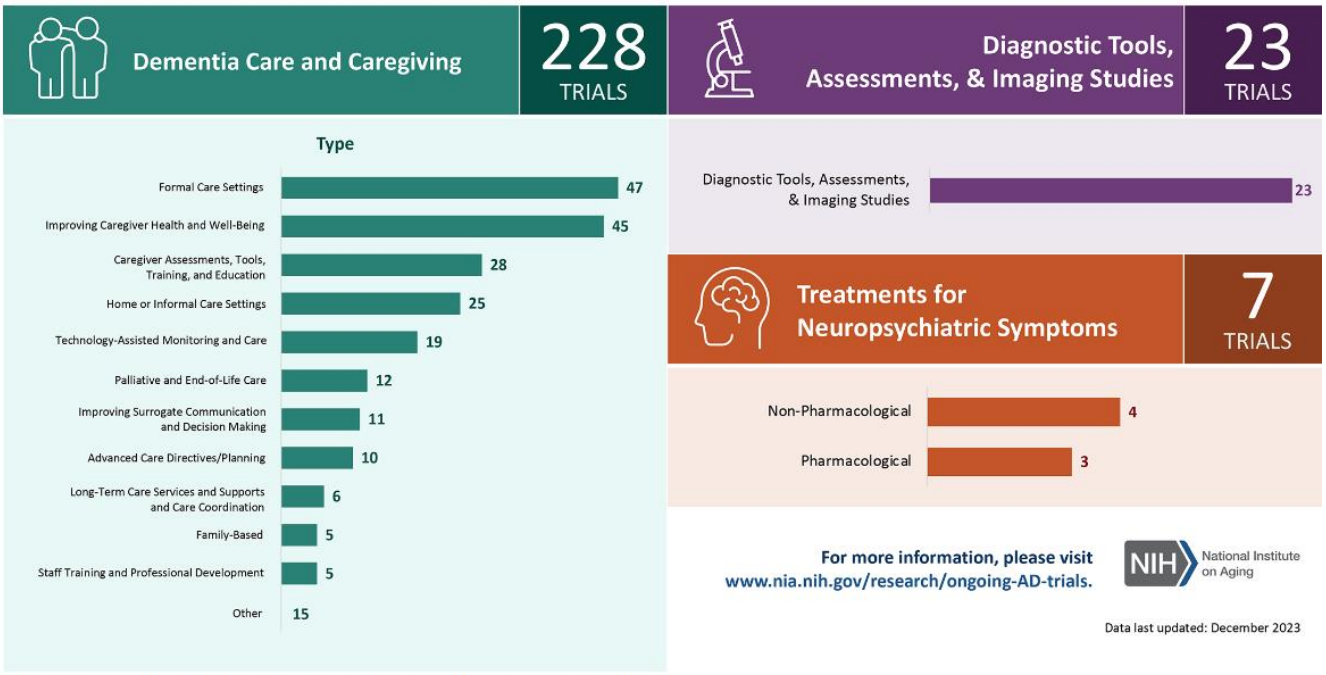
● Effective care management and symptom treatment options exist, however most PLWD and their family caregivers have care needs that go unevaluated and unmet. Many of these are non-medical needs.

● The provision and coordination of dementia care is inadequate, although effective care and treatment strategies have been developed.

Active NIA AD/ADRD Clinical Trials



Active NIA AD/ADRD Clinical Trials

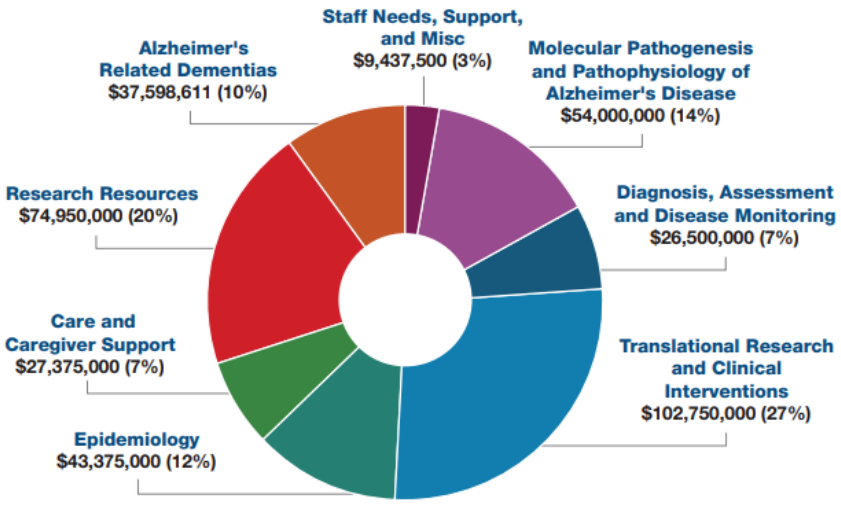


Please note: The data in the graphics are from December 2023.

[NIA-Funded Active Alzheimer's and Related Dementias Clinical Trials and Studies | National Institute on Aging (nih.gov)]

NIH Professional Judgment Budget for Alzheimer's Disease and Related Dementias for Fiscal Year 2023

Distribution of FY 2023 Total Projected Costs Across Research Areas

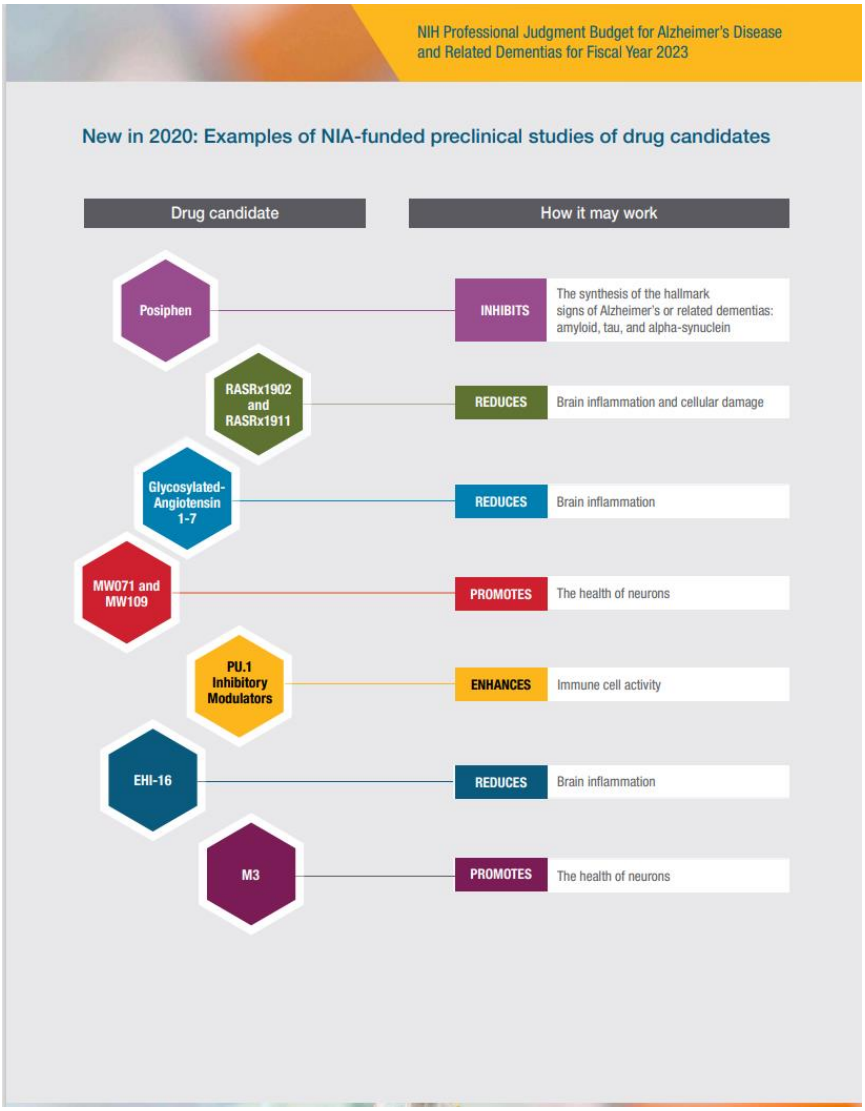


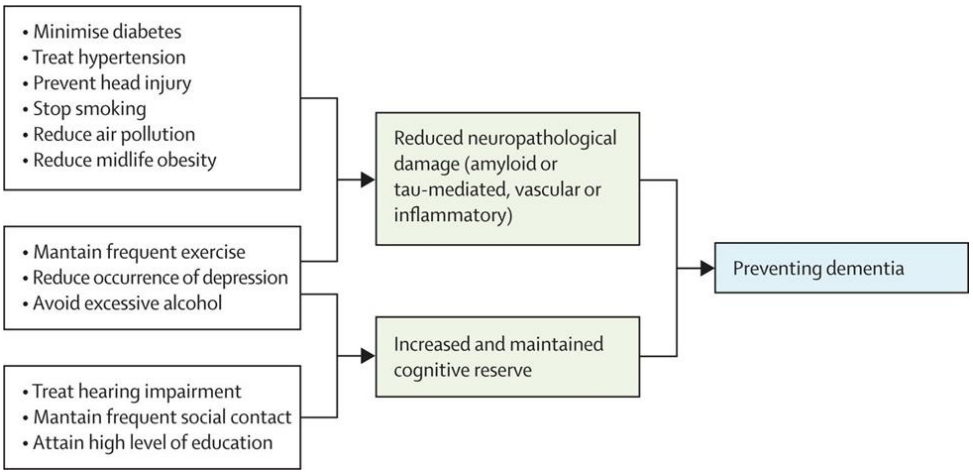
Total Projected Costs:
$375,986,111*

Additional Resources Needed for New Research:
$225,986,111

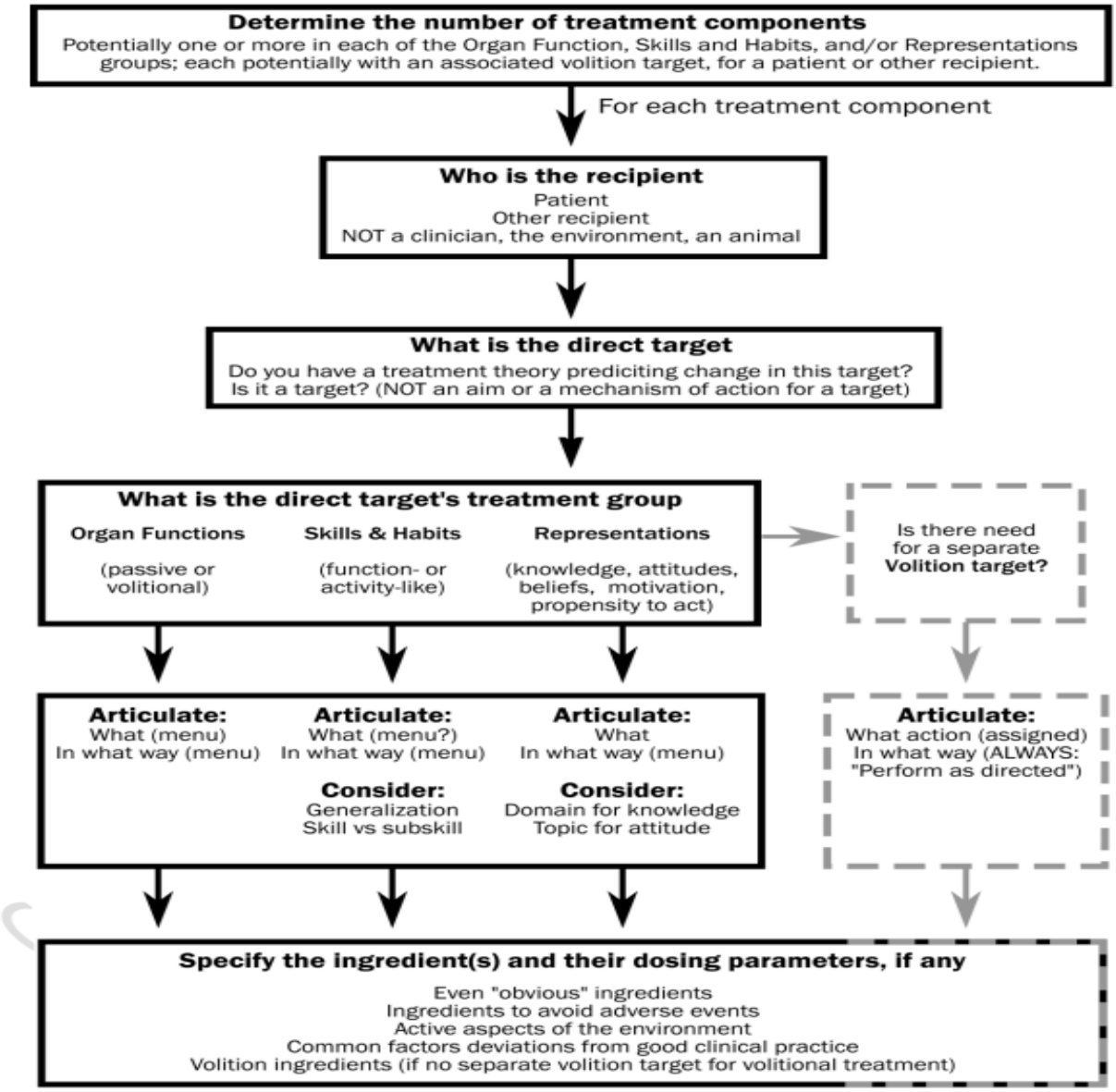
* *In FY 2023, the projected cost of resources needed for new and evolving research to meet the 2025 treatment/prevention goal is $376 million. This estimate will be reduced by $150 million in funding from completed projects that is now available for new research initiatives. As a result, the additional resources needed for new research in the FY 2023 budget are $226 million.*

NIH Professional Judgment Budget for Alzheimer's Disease and Related Dementias for Fiscal Year 2023: Transforming Research To Prevent, Detect, Treat, and Provide Better Care for Dementia





DEMENTIA STRATEGIES https://www.thelancet.com/article/S0140-6736(20)30367-6/fulltext#seccestitle30



Framework for the Rehabilitation Treatment Specification System

Manual_Treatment_Specification_v6.2_confidential.pdf (acrm.org)

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LIST OF INTERVENTIONS

ALCOHOL USE REDUCTION

Excessive consumption of alcohol is one of the leading causes of general disability globally (WHO,2014), being a direct cause in more than 200 diseases including risk factors for dementia and injury conditions (WHO, 1992; WHO 2019a). There is extensive evidence on excessive alcohol as a risk factor for dementia and cognitive decline (Langballe et al., 2015; Sachdeva et al., 2016; Zhou et al., 2014). Several approaches have been applied in interventions aimed at hazardous and harmful use of alcohol. Pharmacological therapies with different types of drugs (e.g. opioid antagonists, ALDH2 inhibitors) have shown various degrees of efficacy for adults with alcohol use disorders, although none of them showed to be superior in comparison trials. Behavior and psychological interventions have shown to be effective in alcohol use disorders, and especially among those with hazardous and harmful drinking. Screening and brief intervention in primary care is one of the most cost-effective means of reducing alcohol-attributable morbidity and deaths (Kaner, 2018).

AROMATHERAPY

Aromatherapy is a part of the discipline of phytotherapy (the use of whole plants or parts of plants for medicinal purposes) and uses pure essential oils from fragrant plants (such as lavender (Lavandula angustifolia), lemon balm (Melissa officinalis), peppermint, sweet marjoram, and rose) to help relieve health problems and improve quality of life in general (OnHealth, 2020). Essential oils have been defined as "highly fragrant essences extracted from plants by distillation, which evaporate readily" (Tisserand, 1988). They may be applied directly to the skin or vaporized or administered through inhalation to induce a calm and positive affect. Medication prescribed for the treatment of dementia is not always effective at relieving symptoms of the condition such as problems with thinking, behavior, mood, and sleep. Natural therapies, including aromatherapy (the use of fragrant essential oils from plants), are attractive options for treating these distressing symptoms of dementia as they are often thought to be well accepted, and have a low risk of side effects. There is a moderate evidence base; evidence is mixed. Autonomic nervous system regulation and social/physical contact may be key elements of effectiveness. Low investment (minimal time, usual caregiver, modest resources). In order to determine whether aromatherapy is safe and effective at relieving symptoms of dementia, larger, well-designed studies with clearer reporting are needed.

ART THERAPY

Various art therapies have been widely proved to be beneficial to patients with dementia. Art therapy has distinct characteristics, using art as a method to diagnose, treat or rehabilitate diseases. The forms of art therapy are diverse and include performing visual and creative arts and medical humanities, such as music, singing, dance, reading and poetry groups as well as museum/gallery art and collections, creative writing, life story narrative-reminiscence, painting, printmaking, collage, pottery, sewing, knitting, woodwork or gardening. However, there is no evidence to prove which art therapy has the best effect on improving cognitive function, quality of life, and psychological and behavioral symptoms of patients with dementia. A study compared the effects of different art therapies using total of 39 randomized controlled trials involving 2801 participants. Calligraphy therapy and reminiscence therapy significantly improved cognitive function compared with the usual care, and reminiscence therapy significantly enhanced cognitive function compared with music therapy. Horticultural therapy significantly decreased agitation behavior compared with the usual care, music therapy, reading therapy and reminiscence therapy. In addition, calligraphy therapy improved quality of life compared with the usual care. In conclusion, calligraphy therapy might be the most effective art therapy for improving cognitive function and quality of life. Horticultural therapy might be the best art therapy for decreasing agitation behavior.

ASSISTIVE TECHNOLOGY AND PRODUCTS

Technology can assist and support both people with dementia (PWD) and caregivers. Recently, technology has begun to embed remote components for eating, drinking, mobility, dressing, safety, and falls. A recent review identified 420 articles, 30 of which were reviews and nine of which were new studies meeting the inclusion criteria.

The studies targeting technologies for PWD were categorized as follows: monitoring and security purposes, sustaining daily life, and therapeutic interventions. Each category showed potential benefits. Differently, the interventions for caregivers were classified as informative, psycho-education programs, psychosocial-supportive, therapeutic, and cognitive/physical training. Benefits to mental health, skills learning, and social aspects emerged. The evidence shows that technology is well-accepted and can support PWD and caregivers to bypass physical and environmental problems both during regular times and during future pandemic waves. Nevertheless, the lack of a common methodological background is revealed by this analysis. Further and more standardized research is necessary to improve the implementation of technologies in everyday life while respecting the necessary personalization.

CHINESE MEDICINE

In recent years, the number of studies into the use of traditional Chinese medicine (TCM) for dementia treatment has increased, revealing a formula that could significantly improve memory and cognitive dysfunctions in animal models. TCM showed fewer adverse effects, lower costs, and improved suitability for long-term use compared with currently prescribed drugs; however, these decoctions were not originally designed for people with dementia. Due to the complexity of ingredients and variations in bioactivity of herbal medicines, the multi-target nature of the traditional Chinese formula needs further research. Additionally, a standard quality control measure should be established for herb preparation, storage, and dosage, due to the complexity of the compounds.

COGNITIVE TRAINING

Cognitive training (CT) involves the formal training of global cognition or specific abilities using standardized tasks. The assumption behind CT is that underlying cognitive processes can be improved or maintained through training, and that training-related cognitive gains may prevent, delay, or slow down cognitive and functional decline in older age. High-quality reviews, including two systematic reviews and a systematic overview established that CT leads to moderate improvements in global cognition in people with MCI and dementia. Evidence for sustained gains, or that go beyond global cognition, is of generally low quality due to high risk of bias in primary trials. Improved implementation of best practice standards in CT research in older age, and a better understanding of underlying mechanisms and predictors of gain in individual recipients, are critical research priorities. CT is sometimes confused with the related but distinct approaches of general cognitive stimulation and cognitive rehabilitation, and unfortunately these terms are still often used interchangeably. The weight of the evidence supports the view that structured process-based cognitive training leads to at least modest improvements in cognitive test performance in people with MCI and dementia, and that these improvements may be maintained over a short to medium period. What is now required is a sustained effort to improve our understanding of how to develop more personalized CT treatments that can be better integrated with everyday life and meaningful everyday activities, so that ongoing engagement is more likely and that transfer of gains from performance on standard tests of cognition to relevant functional domains is enabled. In addition, improved knowledge of the structural and functional effects of CT in key brain regions and networks would help ensure that task design and selection, as well as dosing parameters, are informed by such changes.

COGNITIVE REHABILITATION

Cognitive rehabilitation (CR) is a goal-oriented, problem-solving behavioral therapy aimed at optimizing ability to function in everyday life in relation to the person's needs, wishes, and preferences. Robust evidence including findings from two large trials supports the potential of CR to improve management of functional disability. Evidence from pilot studies and qualitative evaluations suggests that people with dementia and caregivers can experience wider benefits such as improved adjustment or coping, but these have not yet been captured quantitatively in the larger trials. The typical length of follow-up in trials precludes identification of long-term benefits. Future efforts should focus on optimizing outcome measurement, including longer follow-up periods in trials, and implementing CR into health-care provision. Prompting strategies, memory training, and time management skills are examples of cognitive rehab techniques.

COGNITIVE STIMULATION THERAPY

Cognitive stimulation therapy (CST) is a brief intervention, based on the theory that appropriate and targeted mental stimulation can lead to the development of new neuronal pathways. CST aims to improve cognitive function, as well as quality of life and mood, through themed group activities, such as discussing current affairs, which implicitly stimulate memory, executive functioning, and language skills. There is a large, international evidence base for group CST demonstrating a significant beneficial effect on cognition and quality of life in dementia. A Cochrane systematic review of 15 randomized controlled trials (RCTs) found consistent benefits of CST on cognitive function such as naming, word finding, and reading comprehension. A systematic review of 12 studies evaluating the UK CST protocol found improvements in cognition, quality of life, depression, confidence, and impact on caregivers. Further research efforts may include investigating the relationship between adherence to outcome as well as the effectiveness of individual CST delivered by non-family caregivers.

COMMUNICATION TREATMENTS

Communication interventions target a construct referred to as "quality of communication life," defined as the extent to which a person's communication acts allow a meaningful participation in life situations. Communication treatments aim to maintain or improve quality and quantity of meaningful communication interactions. These treatments can be divided into direct and indirect treatments. Direct treatments are primarily language stimulation tasks and activities, delivered individually or in groups. Indirect treatments include training family and professional carers in strategies for effective communication, modifying environments to facilitate communication, and developing therapeutic routines and activities that promote communication. A current challenge is the tendency for late (or no) recognition of communication problems in MCI and dementia. The level of evidence is currently limited due to a lack of controlled studies, and future efforts should focus on this.

Communication changes in dementia are influenced by factors including dementia etiology, location of neuropathology, and disease stage. Comprehensive communication assessment aims to cover all levels of the World Health Organization's International Classification of Functioning, Disability, and Health framework (ICF). Communication intervention should take a person-centered approach that focuses on co-designing functional and personally meaningful goals. The resource below reviews four communication interventions: word retrieval intervention, script training, memory books, and communication partner training. Currently, there is strongest evidence supporting communication partner training and memory book use across various dementia etiologies. Word retrieval intervention and script training have only been evaluated for use in primary progressive aphasia (PPA). Health professionals with expertise in the assessment and management of communication are an integral part of the multidisciplinary care team of people with dementia. https://tinyurl.com/yaxhhp2n

COMPUTERIZED COGNITIVE TRAINING (CCT)

Cognitive functions include orientation, attention, memory, abstraction, organization, planning, calculation and problem-solving. Brain training involves activities that challenge your brain to keep your thinking sharp. This follows the 'use it or lose it' idea that the more you challenge your brain, the less likely you are to lose your thinking abilities or ability to remember or learn things. There are many commercial brain training games and apps available. Some have been tested in research studies, but the majority have not. Unlike games, most CCT interventions are designed to be administered under the face-to-face supervision of a trained professional, such as a clinician or a therapist, to ensure adherence and respond to technical difficulties. By contrast, unsupervised CCT fully utilizes the automation element and allows the subjects to administer the CCT at home by themselves or caregivers without real-time supervision by professionals, so it saves healthcare resources.

More clinical studies are recommended to ascertain further the benefits of CCT among those diagnosed with dementia, especially those at the early stage. Brain training may make you better at specific tasks but does not improve thinking in general. People should be cautious if they find commercial packages that claim they can prevent

or delay cognitive decline. The evidence for this is currently lacking. One of the leading providers of commercial brain training games was fined for making false claims about the benefits of their product.

CULTURAL ADAPTATION OF INTERVENTIONS

Members of certain ethnic backgrounds, such as Hispanics, Latinos, and Blacks, are at disproportionate and increased risk for Alzheimer's disease and related dementias, yet few evidence-based supportive care interventions are specifically developed for or adapted for these groups. The term "cultural adaptation" refers to "the systematic modification of an evidence-based treatment or intervention protocol to consider language, culture, and context in such a way that is compatible with the client's cultural patterns, meaning, and values" (Bernal et al., 2009, p. 362). Adapting a supportive care intervention requires more than language translation; it necessitates an understanding of cultural nuances and care preferences of families and staff who implement the intervention. Use bilingual and bicultural staff in delivering interventions; incorporate cultural expressions and messaging that is culturally appropriate and meaningful; and use content and images that are reflective of the community, as well as their cultural practices, contexts, and challenges that reflect lived experiences and preferences of individuals as well as interventionists/staff themselves. In some cultures, a strong reliance on family to provide care can result in underutilization of supportive services. Cultural adaptation is an essential consideration when developing, adapting, and implementing previously tested evidence-based interventions.

DANCE THERAPY

Literature supports the value of interventions that acknowledge the complexity of the condition and address the person holistically, including physical, emotional, social, and cognitive processes. The capacity of the arts and embodied practices may address this complexity. Dance movement therapy (DMT) is an embodied psychological intervention that may be useful for people with dementia, but its effectiveness remains unclear. A systematic review included one randomized controlled trial (RCT) with a low risk of bias. Due to the low certainty of the evidence, the true effects of DMT as an intervention for dementia may be substantially different from those found. More RCTs are needed to determine with any confidence whether DMT has beneficial effects on dementia.

DEPRESSION MANAGEMENT

There is a substantial body of evidence linking depression to cognitive decline and dementia. A review carried out as part of the World Alzheimer Report in 2014 combined 32 studies into a meta-analysis which looked at the effect of depression on the risk of incident dementia. This involved 62,568 participants with a median follow-up of 5 years (range 2 to 17). The review reported that the presence of depression nearly doubled the risk of dementia (pooled effect size = 1.97, 95% CI: 1.67–2.32) (Prince et al., 2014). The authors also carried out a meta-regression looking at follow-up time. They reported a trend toward smaller effect sizes in studies with longer follow-up suggesting that depression may have a prodromal role in dementia. It is noteworthy to mention that cognitive impairment may be the main symptom of depression in the elderly; a phenomenon that used to be called pseudodementia. There are several potential explanations for the link between depression and cognitive impairment or dementia. Some of these include associations between depression, noradrenergic changes and white matter lesions, depression which stems from insight into impairment at early stages of decline, depression highlighting underlying deficits, i.e. by reducing motivation and bringing its own cognitive deficits (Camus et al., 2004; Jorm, 2001; Kales et al., 2005; Schweitzer et al., 2002).

DIABETES MANAGEMENT

The presence of late life diabetes has been linked to an increased risk of dementia (Luchsinger, 2010; Prince et al., 2014; Profenno et al., 2010). However, the mechanism by which this occurs is unclear. Poor glucose control has been associated with lower cognitive functioning and greater cognitive decline (Yaffe et al., 2012). In addition, the complications associated with diabetes, such as nephropathy (kidney damage), retinopathy (eye damage), hearing impairment and CVD, have all been found to increase the risk of dementia (Bruce et al., 2014; Exalto et al., 2013).The literature examining interventions that aim to improve glycemic control shows mixed findings with regard to cognitive outcomes (Launer et al., 2011; Luchsinger et al., 2011). In addition, the evidence on the effectiveness of medication

for diabetes in reducing dementia risk is inconsistent (Cheng et al., 2014; Moore et al., 2013; Parikh et al., 2011). There is some evidence to suggest that treating the cardiovascular comorbidities associated with diabetes, such as high cholesterol and hypertension, may mediate the risk for dementia (Johnson et al., 2012; Parikh et al., 2011).

DIET

A healthy diet throughout the life course plays a crucial role in optimal development, and in maintaining health. Previous dietary intervention studies have shown that dietary changes are involved in prevention of many conditions that increase the risk of dementia, such as diabetes. Mechanistic and animal models have suggested a variety of pathways that link dietary factors to neuropathological changes in the development of dementia (Swaminathan & Jicha, 2014). Therefore, dietary factors may be involved in the development of dementia, both directly and through their role on other risk factors, and a healthy diet may have a great preventive potential for cognitive impairment. The Mediterranean diet is the most extensively studied dietary approach, in general as well as in relation to cognitive function. Several systematic reviews of observational studies have concluded that high adherence to the Mediterranean diet is associated with decreased risk of MCI and AD, but modest adherence is not (Singh et al., 2014; Wu & Sun, 2017). Moreover, among participants with normal cognition, higher adherence is associated with better episodic memory and global cognition (Loughrey et al., 2017). Other promising dietary approaches associated with better cognitive function include dietary approaches to stop hypertension (DASH) (Berendsen et al., 2017; Morris et al., 2015a; 2015b; Wengreen et al., 2013); and the brain health-specific Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) diet.

Concerning individual foods and nutrients, consumption of fruit and vegetables (Jiang et al., 2017; Wu et al., 2017) and fish (Bakre et al., 2018; Zhang et al., 2016) are most consistently associated with decreased risk of dementia. Higher fish consumption has been linked to lower memory decline among healthy participants in many studies (Samieri et al., 2018), as well as intake of polyunsaturated fatty acids (PUFA) (fish-derived) (Zhang et al., 2016). Other foods and nutrients that have been associated with reduced risk of dementia or cognitive impairment are nuts, olive oil and coffee (Solfrizzi et al., 2017). Evidence has also been reported concerning folate, vitamin E, carotenes, vitamin C and vitamin D (Balion et al., 2012; Dangour et al., 2010; Rafnsson et al., 2013; Travica et al., 2017), but findings are inconsistent.

Here are the WHO recommendations on a healthy diet for adults: (http://www.who.int/en/news-room/fact-sheets/detail/healthy-diet). Fruits, vegetables, legumes (e.g. lentils, beans), nuts and whole grains (e.g. unprocessed maize, millet, oats, wheat, brown rice). At least 400 g (five portions) of fruits and vegetables a day. Potatoes, sweet potatoes, cassava and other starchy roots are not classified as fruits or vegetables. Less than 10% of total energy intake from free sugars which is equivalent to 50 g (or around 12 level teaspoons) for a person of healthy body weight consuming approximately 2000 calories per day, but ideally less than 5% of total energy intake for additional health benefits. Most free sugars are added to foods or drinks by the manufacturer, cook or consumer, and can also be found in sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates.

Less than 30% of total energy intake comes from fats. Unsaturated fats (found in fish, avocado, nuts, sunflower, canola and olive oils) are preferable to saturated fats (found in fatty meat, butter, palm and coconut oil, cream, cheese, ghee and lard) and trans-fats of all kinds, including both industrially produced trans-fats (found in processed food, fast food, snack food, fried food, frozen pizza, pies, cookies, biscuits, wafers, margarines and spreads) and ruminant trans-fats (found in meat and dairy foods from ruminant animals, such as cows, sheep, goats, camels and others). It is suggested to reduce the intake of saturated fats to less than 10% of total energy intake and trans-fats to less than 1% of total energy intake. In particular, industrially produced trans-fats are not part of a healthy diet and should be avoided. Less than 5 g of salt (equivalent to approximately 1 teaspoon) per day and use iodized salt.

DYSLIPIDEMIA MANAGEMENT

The idea that raised level of blood cholesterol could be related to an increased risk of dementia was already introduced in the mid-1970s (Richardson et al., 2000). Since then, several epidemiological studies have demonstrated a close relationship between high serum cholesterol levels and the onset of AD/dementia (Kivipelto et

al., 2002; Solomon et al., 2007; Whitmer et al., 2005), but results have been inconsistent, with other studies showing no or negative correlation (Mainous et al., 2005; Mielke et al., 2005). Based on the severity of dyslipidemia and CVD overall risk, lifestyle or pharmacological approaches can be undertaken to reduce blood cholesterol. Weight reduction and decreasing saturated fats in the diet (decreasing the consumption of food of animal origin) are the most common and effective lifestyle recommendations (Perk et al., 2012). However, dyslipidemia is often controlled and managed pharmacologically, with statins being the drugs of first choice.

EDUCATION, ADVICE AND SUPPORT

Holistic post-diagnostic care which addresses physical and mental health, social care, and support should be provided. Most people with dementia have other illnesses and might struggle to look after their health, and this might result in potentially preventable hospitalizations. Specific interventions for family carers have long-lasting effects on depression and anxiety symptoms, increase quality of life, are cost-effective and might save money. With good quality care, people can live well with dementia and families can feel supported. Learn more about the Guiding an Improved Dementia Experience (GUIDE) Model of Care: https://www.cms.gov/priorities/innovation/innovation-models/guide The GUIDE Model will focus on dementia care management and aims to improve quality of life for people living with dementia, reduce strain on their unpaid caregivers, and enable people living with dementia to remain in their homes and communities. It will achieve these goals through a comprehensive package of care coordination and care management, caregiver education and support, and respite services.

EQUINE THERAPY

Animal-assisted interventions can have positive effects on the health and wellbeing of people living with dementia. Equine-assisted services are animal-assisted non-pharmacological interventions which have improved the health and wellbeing of diverse populations. A systematic review found a favorable impact of participating in equine-assisted services on the neuropsychiatric symptoms and quality of life of people living with dementia. Participating in equine-assisted services improved well-being, functional abilities, social participation, and communication, while also having a positive effect on social, emotional, and behavioral outcomes, and physical health. The limited but high-quality literature investigating the impact of equine-assisted services among people living with dementia suggests that equine-assisted services can have a positive impact on the health and wellbeing of people living with dementia. Additional robust studies contributing to the evidence base are warranted; such studies can support the development of programs and further elucidate the impact of participation.

HEARING LOSS MANAGEMENT

Hearing impairment has debilitating consequences on functional ability and social and emotional well-being. Deteriorations in hearing impact on individuals' ability to communicate with others, which in turn can result in feelings of frustration, isolation, loneliness (Ciorba et al., 2012). Older adult populations who already experience the isolating effects of age-related factors, such as diminished mobility, driving cessation, death of partners or living alone, are particularly vulnerable to these psychosocial impacts. Hearing loss is also associated with increased risk of cognitive decline or dementia (Lin et al., 2013). A recent meta-analysis of prospective cohort studies showed that the relative risk of hearing impairment on incident Alzheimer's and MCI was 2.82 (95% CI: 1.47–5.42). (Zheng et al., 2017). Additionally, a meta-analysis published by the Lancet Commission showed that hearing loss can almost double the risk of incident dementia (RR = 1.94, 95% CI: 1.38–2.73) (Livingston et al., 2017). Hearing loss and cognitive impairment or dementia, individually, and in combination, predict functional ability and burden of care. Hearing loss interventions, therefore, have the potential to substantially improve outcomes for older people on multiple domains.

HYPERTENSION MANAGEMENT

Hypertension in mid-life has been associated with an increased risk of late life dementia (Kivipelto et al., 2001). A pattern of increased blood pressure during mid-life followed by a rapid decrease in blood pressure later in life has been found in individuals who go on to develop dementia (Kivipelto et al., 2001; Launer et al., 2000; Stewart et al., 2009). There is mixed evidence relating to the reduction of blood pressure in late mid- or late life and subsequent

cognitive decline or dementia; however, there is evidence to show that the reduction of hypertension can have substantial benefits in reducing cardiovascular morbidity and mortality, thus improving overall health of the ageing population (Musini et al., 2009). Hypertension can be prevented through a range of lifestyle factors, including eating a healthy diet, maintaining a healthy weight, and participating in an adequate amount of physical activity. It can also be controlled through antihypertensive medication. However, the evidence for the effectiveness of blood pressure lowering treatments in reducing the risk of cognitive decline and dementia risk is mixed.

LIGHT THERAPY

This option involves exposure to simulated or natural lighting designed to help promote synchronization of circadian rhythms with environmental light–dark cycles. Normal aging is associated with changes in the circadian sleep-rest cycle that may result in fragmented nocturnal sleep, including multiple and prolonged awakenings, and increased daytime sleep (Forbes, Blake, Thiessen, Peacock, & Hawranik, 2014). In persons living with dementia, these sleep disturbances tend to be exacerbated by degenerative changes in the suprachiasmatic nuclei (SCN) of the hypothalamus, which generates the circadian rhythm, and can result in BPSDs such as agitation and sundowning. There is a moderate evidence base; evidence is mixed, showing both positive and negative effects. More high-quality research is required, especially with natural lighting. The degree of acceptance varies by light source, with some potential for harmful effects. A change to circadian rhythm may be the key element of effectiveness. Moderate investment (moderate time, usual caregiver, low or moderate resources).

MASSAGE

Massage is described as tactile or therapeutic touch applied to back, shoulders, necks, hands, or feet by qualified massage therapist or by trained staff or family members, to induce calm and positive affect. As a nonverbal means of communication or connection, massage may help offset the social isolation that triggers negative affect and related behaviors. There is a small evidence base which indicates positive effects on agitation, aggression, anxiety, depression, and disruptive vocalizations. It is well accepted with no known harmful effects, although individual preference regarding physical touch should be assessed and honored. Physiological response and social/ physical contact may be key elements of effectiveness. The practice involves low investment (minimal time, usual caregiver, modest resources). More high-quality research is required, using consistent implementation protocols and outcome measures, and conducted with larger samples.

MEANINGFUL ACTIVITIES

Things to do which are designed to enhance quality of life through engagement, social interaction, and opportunities for self-expression and self-determination. By contrast, lack of meaningful activity is cited by persons living with dementia and family members as one of the most “persistent and critical” unmet needs. Moderate evidence base; evidence is mixed but shows some positive effects on agitation; larger effect sizes for activities that are individually tailored. Some evidence for positive effect of physical exercise activities on agitation and depressive symptoms .More high-quality research with larger samples and longer duration required. Degree of acceptance varies by appropriateness of activity. No known harmful effects, except for expected risks associated with physical engagement in activities. Enhancing quality of life, social interaction, and opportunities for self-expression and self-determination may be key elements of effectiveness. Low to moderate investment (moderate time, usual or special caregiver, modest resources).

MEDITATION

Meditation refers to a family of emotional and attentional regulatory training exercises. Meditation training programs, usually including sessions with an instructor as well as daily home practice, have been shown to improve cognition, well-being, and health in older age and may contribute to delaying the onset of dementia. Potential mechanisms underlying the effect of meditation include effects on inflammation, stress and emotion regulation, brain microstructure and/or macroscopic brain structure, brain glucose metabolism and brain connectivity, and effects on telomere length and telomerase activity. There are currently no meta-analyses or systematic reviews specifically focused on meditation as a single domain treatment for MCI and dementia. Though there is limited formal evidence,

pilot RCTs and cross-sectional studies showed effects on cognition, psycho-affective factors, sleep quality, and quality of life. Future research should include longitudinal studies and RCTs, with large samples and using clinically meaningful biological and neuroimaging biomarkers.

MINDFULNESS-BASED

Evidence suggests that mindfulness-based interventions (MBI) are highly acceptable and credible treatments for patients with MCI, persons with dementia (PwD) and caregivers. MBIs may be an alternative approach to dementia care for both PwD and their caregivers as they generally require participants to learn simple skills and basic principles (e.g., staying focused on present-moment awareness without judging the experience) through multisensory-based exercises (e.g., vision, hearing, and taste as well as observation of thoughts and feelings). As PwD and their caregivers practice directing their attention to various internal (e.g., breathing, visual imagery, and sensations in the body) and external (e.g., mantra and ambient sounds) stimuli without distraction, their concentration and ability to suppress attentional shift into distracting information can be strengthened. Furthermore, when the object of mindfulness is allowed to change over time (e.g., body scan exercise and open awareness meditation), participants can improve flexible attention shifting and meta-cognition as a type of executive functioning skills. Improved attention and executive functioning, in turn, may facilitate encoding of information that needs to be recalled in the future, thus leading to memory enhancement. Specifically, for PwD, the results indicated that the magnitude of post-treatment effects of MBIs are in the medium to large range for psychosocial outcomes, and in the small to medium range for cognitive functioning; however, treatment effects on dementia biomarkers were mixed, ranging from small to large, depending on the outcome measure. Findings also evidenced beneficial effects of MBIs for caregivers of PwD, with post-treatment effects ranging from medium to large for caregiver stress and burden and large effects for quality of life, and mixed outcomes for cognitive functioning, with effects in the small to large range. However, confidence in these findings is relatively limited due to methodological limitations, especially in terms of poor consistency in intervention strategies, outcome measures, and other key criteria across studies. To better assess the value of MBIs for these populations and optimize treatment outcomes, further research with improved study methodology (e.g., multi-method assessment, universal criterion and outcome measures, use of active control groups, larger sample sizes, long-term follow-up) is needed to replicate current findings and enhance our understanding of underlying treatment mechanisms.

MODIFICATION OF HOME ENVIRONMENT

The domestic home is the preferred site for care provision for people with dementia and their families; therefore, creating a dementia and caring friendly home environment is crucial. A systematic search in 12 databases identified international qualitative literature on perceptions and experiences of community-dwelling people with dementia, family, and formal carers regarding the role of the home environment and ways to tackle daily challenges. Forty qualitative studies were included and analyzed using thematic synthesis. The main three themes were: 'home as a paradox', 'there is no magic formula' and 'adapting the physical space, objects and behavior'. Findings indicate that home is an important setting and is likely to change significantly responding to the changing nature of dementia. Surprisingly, this review identified very little research on the meaning of home for carers of people with dementia. Future research should involve carers and practitioners to bring more light into their perspectives, as they are key in promoting strategies. It would also be helpful to investigate the various tensions experienced within the home, for example, how carers make decisions over the strategies used and the potential ethical dimensions of these decisions. When involving people with dementia, researchers should present details of the relationship between them and the participants to add validity to findings. Most of the studies included in this review were focused on safety promotion. Future research should also look for elements promoting comfort in addition to safety to address all aspects of the home experience for both people with dementia and their family carers. Also of interest would be a study to explore the role of home space, acceptable strategies and the meaning of home for minority ethnic groups. Future research should address the barriers to adopting professionals' recommendations and implementing environmental strategies, and ways to promote continuous formal services. Future studies could also benefit from the use of walking interviews (Carpiano, 2009), a useful method to contextualize participants' lived experiences and

overcome any uncertainties over the actual use of discussed strategies. Some physical modifications include handrails/grab bars, ramps, lighting, labelling and reminders, and decluttering.

MULTISENSORY TREATMENTS

Multisensory treatments stimulate the senses (sight, hearing, taste, touch, smell) to compensate for sensory deprivation or to restore an imbalance with a combination of light effects, calming sounds, smells, and/or tactile stimulation, to overcome apathy or induce calm. Originating in the learning disabilities field, MSS is designed to provide "a stress-free, entertaining environment both to stimulate and to relax" (Sánchez, Millán-Calenti, Lorenzo-López, & Maseda, 2013, p. 7), which does not require cognitive processing or short-term memory. Because MSS environments are designed to be explored by the individual in his/her own way, MSS is also intended to promote control and autonomy, which may otherwise be denied to persons living with dementia. These treatments mostly aim to improve behavior, quality of life, well-being, or functioning and are often suitable for moderate dementia. Snoezelen and sensory gardens involve supervised presence in environments equipped with tools to stimulate senses, and Sonas is a structured group program to stimulate all senses. Well accepted with no known harmful effects. Social contact may be a key element of effectiveness. Moderate investment (moderate time, usual caregiver, moderate resources). Although all of these treatments have been studied in some RCTs, the treatments were heterogeneous and study samples small. Taken together, the evidence base for effects is still modest. At this point, well-designed RCTs that allow studying subgroup effects are necessary to advance the field.

MUSIC-BASED TREATMENTS

Music-based treatments are classified as active or receptive musical activities that aim to address multiple non-musical outcomes (e.g., cognitive, psychosocial, communication, and physical goals), often simultaneously. Active treatments include instrument playing, singing, songwriting, and moving to music. Receptive treatments involve listening to recorded or live music. Music therapy treatments (goal-based therapeutic musical interaction with a trained therapist) are distinguished from music activities that can be implemented by other clinicians, caregivers, or self-administered. As a leisure activity, music is thought to promote well-being and fosters sociability in part by offsetting the isolation that can result from progressive loss of verbal ability (Cammisuli et al., 2016). Furthermore, because musical memory is generally retained longer than other memories, music can facilitate reminiscence and potentially reduce anxiety through general mind activation and specific memory triggers (Spiro, 2010). Consistent with the progressively lowered stress threshold model, music may reduce stress by creating a sense of familiarity and regularity in the environment. A recent Cochrane review summarized the effect of multiple RCTs examining both active and receptive music treatments and reported evidence for reductions in depression and overall behavioral problems, but no effect on agitation, and low-quality evidence for reductions in anxiety and quality of life and little to no effect on cognition. For other areas, such as anxiety and social behavior, the Cochrane review found not enough evidence to determine effects. Other recent reviews have found evidence that music therapy is effective in reducing agitation, anxiety, depression, and other neuropsychiatric symptoms. There is disagreement between some published meta-analyses on whether active or receptive treatments are more effective for specific outcomes. The degree of acceptance varies by personal preference for music. No known harmful effects. Promoting well-being and sociability, aiding reminiscence, reducing anxiety/stress, and providing distraction may be key elements of effectiveness. Moderate investment (moderate time, usual or special caregiver, modest resources). The low quality of the current evidence highlights that improvements for future research are necessary, most specifically improving design quality and comparing different music-based treatments (receptive versus active) and dosage.

NEUROMODULATION

Neuromodulation involves the introduction of energy (e.g., electrical, magnetic) into the brain with the goal of altering neurophysiology. Treatments include transcranial magnetic stimulation (TMS) and transcranial direct current stimulation (tDCS). This treatment is currently not yet clinically approved for the use in cognitive deficits. Existing meta-analyses and reviews provide conflicting evidence for the effects of neuromodulation in those across the dementia spectrum but are limited by a small number of primary research studies with small sample sizes. Research into neuromodulation needs a focus on dosing parameters, including dose-response relationships,

and the combination with and timing of other (non)pharmacological agents. This will likely reduce heterogeneity in response and facilitate clinical translation efforts.

NUTRITIONAL TREATMENTS

Nutritional treatments aim to modify dietary intake of micronutrients (vitamins and minerals) and/or macronutrients (proteins, fats, carbohydrates) through specific supplements or in combination through diet. Adequate nutrition is essential for brain health because of its involvement in biological pathways that reduce oxidative stress and inflammation, promote vascular health, as well as improve neuronal cell signaling and function of neuronal cells. Despite limited evidence on the effect of nutritional treatments on cognitive outcomes, and significant methodological challenges, data are promising. Single trials have shown a beneficial effect of B vitamin supplementation on memory performance in MCI patients with high homocysteine, as well as improvements in cognitive performance by supplementation of docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA), and flavonols. Large trials on vitamin E supplementation demonstrated delayed progression in functional decline and AD. Future research should replicate these findings by focusing on conducting clinical trials in sufficient size and duration, as well as rigorous procedures for randomization and blinded testing.

OCCUPATIONAL THERAPY

The primary aim of occupational therapy is to optimize performance by enabling people to participate in the activities that they want, need, or are expected to do. One of the theoretical models is the person-environment-occupation model, which explains the relationship between the capabilities and characteristics of the person—the physical, social, and cultural environment—and the desired activity. The level of evidence for some outcomes is considered “moderate”, with a number of high quality RCTs supportive of improvements in activities of daily living (ADL), quality of life and reductions in problem behavior. Key challenges for the field of occupational therapy include determining the optimal characteristics of the treatment, dose, methods of service delivery, and subgroups most likely to benefit from treatment.

OTs suggest exercises to make daily activities, such as getting dressed or eating, easier to achieve; assess and recommend equipment such as mobility aids or support bars for the bathrooms; reduce risk factors for falls; support people who want to continue or return to working; suggest ways to control levels of fatigue; help to plan a routine to provide structure and stability and lead exercises to support better cognitive function.

PET THERAPY

Structured or unstructured time with animals, primarily dogs, to promote well-being, socialization and emotional support, and sensory stimulation. Physiologically, quiet interaction with an animal can help lower blood pressure and increase production of neuro-chemicals associated with relaxation and bonding, which may in turn reduce BPSD. Small evidence base; evidence is preliminary, with some evidence of positive effects on agitation, apathy, disruptive behavior. Stuffed or robotic pets may be an effective substitute for live animals. More high-quality research with larger samples and consistent implementation protocols required. Degree of acceptance varies by participant’s preference for contact with animals. Negative outcomes may include allergic reactions, hygiene concerns, or anxiety/agitation. Socialization/bonding, emotional support, and sensory stimulation may be key elements of effectiveness. Low to moderate investment (minimal to moderate time, usual or special caregiver, modest to moderate resources).

PHYSICAL EXERCISE TRAINING

Physical exercise training is based on planned and/or structured activity which may be aerobic exercise, resistance training, or a combination (multimodal) or mind-body exercise (e.g., tai chi). The evidence for a positive effect of aerobic training on global cognition is growing with consistent medium effect sizes reported from systematic reviews and meta-analyses. Resistance training usually requires supervision and therefore more resources and intensive treatments to achieve effective adherence. While promising, evidence on this type of training has yet to reach the same consistency, quality, and volume as that of aerobic training. Specifically, a review found Grade A evidence that

over 4+ months: aerobic exercise twice weekly had a moderate effect on global cognition in people with/ without MCI; and interventions that integrate cognitive and motor challenges (e.g. dance, dumb bell training) had small to moderate effects on memory or global cognition in people with MCI. There was Grade B evidence that 4+ months of creative art or story-telling groups in people with MCI; 6 months of resistance training in people with MCI and a two-year, dietary, exercise, cognitive training and social intervention in people with or without MCI had small, positive effects on global cognition. Effects for some interventions remained up to a year beyond facilitated sessions. Future research should investigate whether exercise modes are domain-specific and identification of strategies to enhance adherence to exercise training is warranted. Types of training include gait, balance, muscle-strengthening and mobility.

PHYSICAL THERAPY

Therapists work closely with patients and their carers to encourage physical activity and to help them maintain their independence for as long as possible. Multiple studies show physical therapy can have positive effects on both cognitive and physical skills in patients with MCI and dementia. Benefits associated with physical therapy include: Lower risk of falls, Better ability to perform daily tasks, Increased muscle strength and balance, Improved quality of life, Increased social interactions, Improved mood, Reduced fatigue and pain, Better sleep and reduced caregiver burden. As dementia progresses, physical therapists can make adaptations to the therapy routine to accommodate changing needs.

REMINISCENCE THERAPY

Reminiscence therapy is the recollection and sharing of personal memories and experiences. It aims to bring back memories, stimulate mental activity, and focus on positive thoughts as it also improves the quality of relationships. It can be offered individually or in groups. From mild through advanced dementia, there is meaning found in looking at photos, listening to favorite music, and discussing pleasurable moments. Recently, systematic reviews and meta-analyses with a moderate evidence base showed small significant positive effects on quality of life, mood, BPSD, cognition, and communication in people with mainly mild to moderately severe dementia. Effects differed depending on treatment modality and setting. Well accepted with no known harmful effects, although care providers should help focus reminiscence on positive memories. Increasing well-being and providing pleasure and cognitive stimulation may be key elements of effectiveness Moderate investment (moderate time, usual or special caregiver, modest resources). Future efforts should include large RCTs with detailed descriptions of the treatment protocols, targets, aims, and target groups. Childhood events, favorite games, food likes and dislikes, pets and animals, family and relationships, music, sports teams are all possible topics.

SEXUAL AND INTIMATE RELATIONSHIPS

There is growing evidence for the need to recognize persons with dementia as sexual beings who wish to continue expressing their sexuality, including within their couple relationship. The aim of one literature review was to investigate empirical qualitative studies that examined sexuality and sexual intimacy in the couple relationship when one spouse has dementia. Nine studies were identified that investigated sexuality and sexual intimacy from the perspective of the couple living with dementia or from the perspective of the spouse. The analysis identified four key themes: addressing dementia and sexuality; challenges to maintaining sexuality within the couple relationship; forms of sexual expression; and the desire to be seen as a sexual being. Despite evidence of the importance of sexuality in later life and the positive effects it has on the quality of the couple relationship, research has identified the difficulty of destigmatizing sexuality and older persons, particularly when considering couples affected by dementia. Further research is required to better understand how living with the illness impacts sexual expression and the intimacy of the couple relationship.

SLEEP TREATMENTS

Insomnia is defined as problems with sleep quality or quantity, including difficulty initiating sleep, repeated prolonged awakenings, and/or nonrestorative sleep. Several meta-analyses of cognitive-behavioral therapy for insomnia (CBT-I) support the finding that sleep disturbance is very amenable to change in both young and older

adults, with treatment resulting in robust improvements in sleep quantity and quality. Future efforts should study the neuronal overlap and causal mechanisms between sleep disturbance and cognitive decline in individuals ranging from cognitively normal to impaired, to decide which approaches should be used for which populations and at which point in time.

In addition to insomnia, sleep disturbances in persons with dementia (PWD) also include hypersomnia, excessive motor activity at night, and hallucinations or other behavioral problems. Sleep specialists aim to target nocturnal neurocognitive symptoms in PWD through implementation of sleep promotion strategies (e.g., bright light, regulation of sleep-wake schedules, decreasing arousal, increasing daytime activity) based upon CBT of sleep. While studies have established the effectiveness of various environmental and multi-component treatments to improve sleep in PWD, there are currently no meta-analyses or systematic reviews of CBT-I in those with MCI or dementia. Specific CBT-related methodological challenges included lack of standard treatment components and measurements and need for caregivers who can oversee treatment recommendations and sleep assessments. Future research should focus on the understanding the role of sleep disturbances in the pathogenesis of dementia and the underlying mechanisms of sleep and cognitive decline, as well as how dementia diagnostic subtypes and age of onset may impact treatment response.

SOCIAL ACTIVITY

Social engagement is an important predictor of well-being throughout life (Cherry et al., 2011). Social disengagement, conversely, has been shown to place older individuals at increased risk of cognitive impairment and dementia (Fratiglioni et al., 2004). A systematic review and meta-analysis of longitudinal cohort studies showed that lower social participation, less frequent social contact and loneliness were associated with higher rates of incident dementia (Kuiper et al., 2015). Maintaining strong social connections and keeping mentally active as we age may lower the risk of cognitive decline and dementia. Experts are not certain about the reason for this association, but it may be due to a strengthening of connections between nerve cells in the brain. Participation in clubs, volunteer efforts and other community pursuits may be valuable in maintaining your overall health. Many of these social activities are low-cost or free, such as joining a walking group or book club in your neighborhood. Staying socially active can also be as simple as engaging with friends and family on a regular basis. The Lancet Commission on Dementia Prevention, Intervention, and Care identified social engagement as an intervention that could be used to prevent dementia (Livingston et al., 2017).

SOCIAL DETERMINANTS OF HEALTH

Social determinants of health (SDOH) are the nonmedical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping daily life. These forces and systems include, but are not limited to, economic policies and systems, development agendas, social norms, social policies, racism, climate change, and political systems. Unfair and unjust differences in SDOH contribute to chronic disease disparities in the United States among racial, ethnic, and socioeconomic groups, limiting opportunities for members of some groups to be healthy. Equitably addressing differences in SDOH helps make progress toward health equity, a state in which every person has the fair and just opportunity to attain their highest level of health. While public health crises and economic uncertainty may focus attention on disparities, health inequities have persisted across generations because policies and practices have systematically limited access to health care and other opportunities. A growing body of work exists around social and economic factors that may contribute to a person's health status, including a person's risk for dementia. Although more work needs to be done to determine the exact relationship between these factors and dementia, here are a few areas that could be considered: Education, Access to health care, the Built (physical environment), and Loneliness and social isolation.

SPEECH THERAPY

Speech and language therapists can address many of the symptoms of dementia. These clinicians can help with communication and language symptoms, such as difficulty with attention and focus, voice and speech problems, and difficulty reading. They also assess and treat swallowing difficulties in the later stages of the disease. Through

speech and language therapy, people usually experience improvements in understanding spoken and written language, as well as in expressing their thoughts and ideas.

SPIRITUAL SUPPORT

Spirituality plays an essential role in the lives of older adults and is an important factor in health, well-being, and preserved cognitive function as adults age. Despite its importance, there is limited research on the spiritual needs of persons living with dementia (PLwDs) and how to address them. As a dimension of palliative care, spiritual care to address the spiritual needs of PLwDs is an essential component of the bio-psycho-social model of care. A study of twelve peer-reviewed articles revealed that spiritual care needs varied across studies. Spiritual needs were identified as verbal and non-verbal expressions related to past meaning and religious and spiritual background and were not consistently addressed in care. Providers reported observing spiritual distress in the mild stage prompting the need for spiritual care. There is a great need for dementia-specific spiritual assessment tools and spiritual care interventions to support spiritual well-being in dementia care. Spiritual care involves facilitating religious rituals and providing spiritual group therapy and religious and spiritual activities. There is a need for studies that address the spiritual experiences of PLwDs, the spiritual resources they use to meet their spiritual needs, and the impact of spirituality on their health and well-being in general. As meaning often arose in the included studies, a literature review focused specifically on meaning alone is warranted and could bring additional depth and enrich this research space. In addition, findings from an integrated review underscore the important role of healthcare, especially of palliative care providers, healthcare educators, and researchers who are committed to promoting the holistic care of PLwDs in ensuring that future healthcare providers, nursing education curricula, and clinical and research work are responsive to the spiritual needs of PLwDs.

STRESS MANAGEMENT

Stress exposure and stress reactivity may be potent factors associated with increased risk of dementia. The 2017 Lancet Commission on Dementia and its 2020 update reviewed modifiable risk factors associated with dementia, but stress was not addressed directly. A study provides a focused review of the association between stress and dementia across the lifespan, with measures of stress including stress exposure, psychological stress, posttraumatic stress disorder (PTSD), and biological markers of stress. Results suggest that stressful life events that occur earlier in the lifespan, such as loss of a parent, psychological stress experienced in midlife, and extreme stress responses, i.e., PTSD, correlate with higher risk of dementia. Although results generally are mixed, a consistent theme is that stress experienced earlier in the lifespan and chronic stress portend the greatest risk of dementia. Reducing stress exposure and improving stress management when stress exposure cannot be changed are thus relevant strategies in dementia risk reduction and preserving cognitive reserve.

TALK THERAPY

Talk therapy — such as cognitive behavior therapy and counseling — involves sessions with a counselor, a psychologist, or a psychiatrist to discuss feelings and worries, including how one feels about their diagnosis. It may be easier to discuss problems with a therapist rather than with loved ones. Several studies show that talk therapy can reduce symptoms of depression and anxiety. This kind of therapy could also include psychosocial interventions. Talk therapies are effective for older adults in the middle and early stages of dementia.

TOBACCO CESSATION

Interventions for tobacco cessation should be offered to adults who use tobacco since they may reduce the risk of cognitive decline and dementia in addition to other health benefits. Quality of evidence: low. Strength of recommendation: strong. In keeping with interventions described in the WHO training package for tobacco dependence, people who make use of tobacco should be advised to quit and the appropriate programs aimed at preventing tobacco use uptake, promoting tobacco cessation, as well as diagnosing and treating tobacco dependence, should be established. The interventions include behavioral interventions, as well as pharmacological ones (i.e. nicotine replacement therapy, bupropion, varenicline). A large body of observational evidence is available on tobacco smoking as a risk factor for cognitive impairment and dementia. These studies show an association

between tobacco smoking (including in mid-life) and dementia, or cognitive decline, in later life (Beydoun et al., 2014; Di Marco et al., 2014; Lafortune et al., 2016; North et al., 2015; Xu et al., 2015; Zhong et al., 2015). Only limited adverse events have been reported and only for pharmacological interventions (Motooka et al., 2018). Therefore, any type of intervention aimed at tobacco cessation is likely to be more beneficial than detrimental.

VALIDATION THERAPY

Validation therapy teaches that, rather than trying to bring the person with dementia back to our reality, it is more positive to enter their reality. In this way, you can develop empathy with the person, and build trust and a sense of security. This, in turn, reduces anxiety. As an example, if a person with dementia believes that she is waiting for her children (all now middle-aged) to return from school, family and carers who use validation would not argue the point or expect their relative to have insight into their behavior. They would not correct the beliefs of the person with dementia. Instead, with the validating approach, carers would acknowledge and empathize with the feelings behind the behavior being expressed. In this way, the person with dementia has their dignity and self-esteem maintained. There is a small evidence base; evidence is mixed. Validation therapy is implemented through several communication techniques, including using nonthreatening words to establish understanding; rephrasing the person's words; maintaining eye contact and a gentle tone of voice; responding in general terms when meanings are unclear; and using touch if appropriate. Some evidence shows positive effects on agitation, apathy, irritability, and night time disturbance. More high-quality research is required on the specific effects. Well accepted with no known harmful effects, although care providers should ensure that negative emotions are not exacerbated through validation. Alleviating negative feelings and enhancing positive feelings may be key elements of effectiveness. Low investment (minimal time, usual caregiver, modest resources).

WEIGHT MANAGEMENT

Obesity has been steadily rising, particularly among older adults in the last few decades (Nguyen & El-Serag, 2010) and although an increasing body of evidence suggests that overweight ($25 < BMI < 30$) in older adults could be more protective than normal weight in terms of overall mortality (Flicker et al., 2010), a link has also been established between excess of fat body mass and cognitive impairment (Xu et al., 2011). A recent systematic review and meta-analysis of observational studies conducted on a total of about 600 000 individuals showed that obesity (but not overweight) at mid-life increases the risk of dementia (RR = 1.33; 95% CI: 1.08–1.63) (Albanese et al., 2017). It has been suggested that weight loss could indirectly reduce the risk of dementia by improving a variety of metabolic factors linked with the pathogenesis of cognitive impairment and dementia (i.e. glucose tolerance, insulin sensitivity, blood pressure, oxidative stress, and inflammation) (Bennett et al., 2009). However, a direct beneficial effect of weight reduction intervention is also plausible. Although, so far, evidence of potential cognitive benefits of weight loss seem to be strongly associated with increased physical activity (Colcombe et al., 2006; Erickson et al., 2010), in 2011 a systematic review concluded that intentional weight loss can improve performance in some cognitive domains, at least in people with obesity (Siervo et al., 2011).

Lifestyle interventions that included both diet and physical activity components seemed to show the best results. In addition to interventions at individual level, lifestyle interventions at the population level, such as activity parks, green spaces, and infrastructure to support active commuting, need to be considered. Being underweight in both late-mid-life and old age might be associated with a higher risk of dementia. However, it is likely that this association is explained, at least in part, by reverse causality, whereby brain pathology may cause weight loss before the clinical onset of dementia. Unintentional weight loss and malnutrition are associated with poor health outcomes and should be investigated and treated at all ages. However, it is unlikely that interventions that favor weight gain in people who are underweight in either mid- or late life can reduce the risk of dementia or cognitive impairment.

Toward a theory-based specification of non-pharmacological treatments in aging and dementia: Focused reviews and methodological recommendations - PMC (nih.gov)

Risk Reduction of Cognitive Decline and Dementia - NCBI Bookshelf (nih.gov)

Dementia Interventions: 24 Ways to Help Patients (neuraleffects.com)
Evidence-Based Nonpharmacological Practices to Address Behavioral and Psychological Symptoms of Dementia - PubMed (nih.gov)


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ALZHEIMER'S DISEASE MEDICATIONS

The following list provides an overview of Alzheimer's medications. Talk with your health care providers about your options and which ones may be most appropriate.

FDA-approved medications to manage symptoms

Brexpiprazole. *Atypical antipsychotic*. Treats agitation resulting from Alzheimer's. Possible side effects include common cold symptoms, dizziness, high blood sugar, and stroke. Delivered once a day through a tablet.

Donepezil. *Cholinesterase inhibitor*. Treats symptoms of mild, moderate, and severe Alzheimer's by preventing the breakdown of acetylcholine in the brain. Possible side effects include nausea, vomiting, diarrhea, insomnia, muscle cramps, fatigue, and weight loss. Delivered once a day through a tablet. A brand name is Aricept.

Galantamine. *Cholinesterase inhibitor*. Treats symptoms of mild to moderate Alzheimer's by preventing the breakdown of acetylcholine and stimulates nicotinic receptors to release more acetylcholine in the brain. Possible side effects include nausea, vomiting, diarrhea, decreased appetite, weight loss, dizziness, and headache. Delivered through an extended-release capsule taken once a day or through a tablet or liquid taken twice a day. Brand name Razadyne

Memantine. *NMDA antagonist*. Treats symptoms of moderate to severe Alzheimer's by blocking the toxic effects associated with excess glutamate and regulates glutamate activation. Possible side effects include dizziness, headache, diarrhea, constipation, and confusion. Delivered once or twice a day through a tablet, liquid, or an extended-release capsule. Brand name Namenda

Memantine and Donepezil (manufactured combination). *NMDA antagonist*. Treats symptoms of moderate to severe Alzheimer's by blocking the toxic effects associated with excess glutamate and prevents the breakdown of acetylcholine in the brain. Possible side effects include headache, nausea, vomiting, diarrhea, dizziness, anorexia, and ecchymosis (small bruising from leaking blood vessels). Delivered through an extended-release capsule once a day. Brand name Namzaric

Rivastigmine. *Cholinesterase inhibitor*. Treats symptoms of mild, moderate, and severe Alzheimer's by preventing the breakdown of acetylcholine and butyrylcholine (a chemical similar to acetylcholine) in the brain. Possible side effects include nausea, vomiting, diarrhea, weight loss, indigestion, decreased appetite, anorexia, and muscle weakness. Delivered through a capsule twice a day or through a skin patch that is replaced once a day. Brand name Exelon

FDA-approved medications to treat Alzheimer's

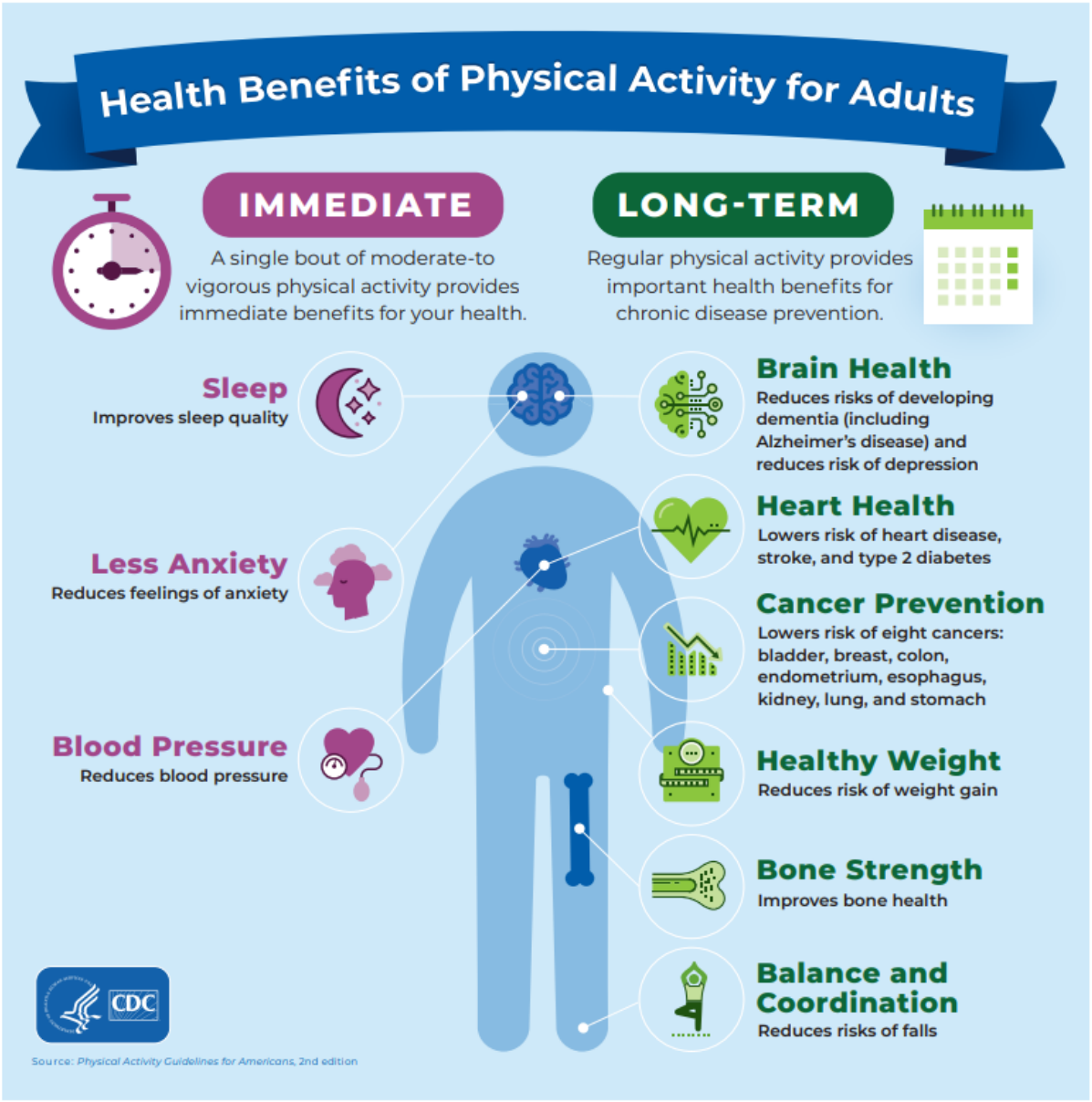
Lecanemab. *Disease-modifying immunotherapy*. Treats mild cognitive impairment or mild Alzheimer's by removing abnormal beta-amyloid to help reduce the number of plaques in the brain. Possible side effects include brain swelling and bleeding, headache, cough, diarrhea, nausea, vomiting, fever, chills, body aches, fatigue, high blood pressure, low blood pressure, and low oxygen. Delivered through IV over one hour every two weeks.

Other Notes:

Aducanumab (Aduhelm®), which received accelerated approval as a treatment for Alzheimer's disease from the U.S. Food and Drug Administration (FDA) in 2021, will be discontinued by its manufacturer (Biogen) in 2024. Aducanumab was the first therapy to demonstrate that removing beta-amyloid, one of the hallmarks of Alzheimer's disease, from the brain reduces cognitive and functional decline in people living with early Alzheimer's.

Pharmacological approaches include investigation of : Inflammation, Amyloid, Metabolism/Bioenergetics, Receptors, Vasculature, Circadian Rhythm, Growth Factors/Hormones, Synaptic Plasticity, Oxidative Stress, Tau

Benefits of Physical Activity



VDH Virginia Department of Health vdh.virginia.gov

Dementia Capable Virginia

DARS Virginia Department for Aging and Rehabilitative Services

6 Healthy Brain Habits

1 Be Social

Keep in touch with friends and family don't let yourself get self-isolated.

2 Engage Your Brain

Find ways to stimulate your thinking and explore new interests and hobbies.

3 Manage Stress

Practice relaxation, and maintain a daily schedule.

4 Ongoing Exercise

Move throughout the day aim to reach 2 and a half hours of moderate physical activity a week.

5 Restorative Sleep

Get 7 to 8 hours of restful sleep every day.

6 Eat Right

Choose a nutritious heart healthy diet including fish veggies fruits.

Brain-Health-Fact-Sheet-Benefits-of-Physical-Activity.pdf (virginia.gov)

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McCance Brain Care Score™

MASSACHUSETTS GENERAL HOSPITAL
McCance Center for Brain Health

Category		Criteria / Description	Rank	Score
Physical	Blood Pressure	Resting blood pressure greater than 140/90, with or without treatment	0	
		Resting blood pressure 120-139/80-89, with or without treatment	2	
		Resting blood pressure less than 120/80	3	
	Blood Sugar	Hemoglobin A1c greater than 6.4	0	
		Hemoglobin A1c between 5.7 and 6.4	1	
		Hemoglobin A1c less than 5.7	2	
	Cholesterol	190 or higher	0	
		No treatment required or less than 190 mg/dL	1	
		If cardiovascular disease is present, LDL is in accordance to the latest CDC recommendations	1	
	BMI	Lower than 18.5 kg/m²	1	
		18.5-25 kg/m²	2	
		25-29.9 kg/m²	1	
		Greater than 30 kg/m²	0	
Lifestyle	Nutrition	**Dietary habits:** • 4.5 servings of fruit and vegetables per day; • 2 servings of lean protein per day • 3 or more servings of whole grains per day • Less than 1,500 mg of sodium per day • Less than 36 oz of sugar sweet beverages (soda, juice, etc.) per week		
		Typical weekly diet does not include at least 2 of the recommendations above	0	
		Typical weekly diet includes 2 or more of the recommendations above	1	
		Typical weekly diet includes 3 or more of the recommendations above	2	
	Alcohol	4 or more alcoholic drinks per week	0	
		2-3 alcoholic drinks per week	1	
		0-1 alcoholic drink per week	2	
	Smoking	Current smoker	0	
		Never smoked or quit more than a year ago	3	
	Aerobic Activities	Less than 150 minutes of moderate or 75 minutes of high intensity physical activity per week	0	
		At least 150 minutes of moderate physical activity (ex. walking) or 75 minutes of high intensity physical activity per week	1	
	Sleep	Untreated sleep disorder and/or sleeps <7hrs per night	0	
		Treated sleep disturbances and 7-8 hours of routine sleep per night	1	
Social Emotional	Stress	High level of stress that often makes it difficult to function	0	
		Moderate level of stress that occasionally makes it difficult to function	1	
		Manageable level of stress that rarely makes it difficult to function	2	
	Social Relationships	I have few or no close connections other than my spouse or children	0	
		I have at least two people, other than my spouse or children, that I feel close with and could talk about private matters or call upon for help	1	
	Meaning in Life	I often struggle to find value or purpose in my life	0	
		I generally feel that my life has meaning and/or purpose	1	

The components above reflect the latest, scientific based key contributors to brain health.
It is important to discuss your score with a healthcare professional.

Total Brain Care Score (0-21)

https://www.massgeneral.org/assets/mgh/pdf/neurology/mccance-center/brain-care-score.pdf

RESOURCES

TRY SOME BASIC PHYSICAL THERAPY EXERCISES

Exercise not only improves cardiovascular health and fitness, but also improves mood, reduces anxiety, and slows down loss of cognitive function. Exercise improves cardiovascular health (such as resting heart rate and blood pressure), increases fitness and strength, improves balance, and decreases the risk of falls. It also improves cognitive health as it increases blood flow to the brain, and reduces restlessness, irritability, and depression. Daily activities are easier to do. 25+ Physical Therapy Exercises for Dementia (neuraleffects.com)

IDEAS FOR PSYCHOSOCIAL INTERVENTIONS

People living with dementia are often surprised to learn just how many approaches and interventions there are that can be helpful when trying to live as well as possible with dementia- Dementia dogs and dramatherapy to name a few. This is a UK-based catalogue of 36 interventions - look up, compare, and choose based on your needs and preferences. It has been useful not only for people with a dementia diagnosis, their families, and friends, but also for professionals, dementia advisors, commissioners of services and policy makers. rep101c_2022.pdf (bps.org.uk)

FOLLOW THE MIND DIET

Poor nutrition may increase symptoms and cause weight loss. In contrast, good eating habits can slow down the progression of the disease. One example of a balanced diet is the MIND diet, combining a traditional Mediterranean diet and the DASH diet (designed to lower high blood pressure). Studies show this diet can slow down brain aging at the equivalent of 7.5 years. The MIND diet includes eating vegetables, fruits, nuts, whole grains, low-fat dairy products, and lean protein foods while avoiding salty, sugary, and fatty processed foods. MIND Diet | The Nutrition Source | Harvard T.H. Chan School of Public Health

CHALLENGE YOUR BRAIN

Stay mentally active and challenge your brain daily to slow down the progression of symptoms. It's important to pick an activity that you enjoy and that also minimizes frustration. Anything that can help you think quickly, recall information, or make decisions can improve cognitive function. Examples include playing games and puzzles; learning a new skill, such as how to play a musical instrument; reading; using apps for brain games; rekindling an old hobby or finding a new one; or engaging in activities that require coordination, such as arts and crafts. Alzheimer's app | MindMate (mindmate-app.com)

PRACTICE GOOD SLEEP HABITS

To promote better sleep: Check for medical conditions, such as depression or sleep apnea, which may cause sleep problems. Always follow a routine by going to bed and getting up at the same time. Avoid alcohol and caffeinated drinks, especially at night. Avoid the use of screens before going to bed. Get some physical activity during the day. Limit daytime naps to 20-30 minutes. Create a peaceful mood before going to bed. Find a relaxing activity such as listening to calming music or reading a book. Check medication side effects. Some medications — including donepezil, for example — can cause insomnia. Taking these earlier in the day may help but check with your doctor before you make any changes. Try a sleep app: Calm - The #1 App for Meditation and Sleep

GET THE LOWDOWN ON MEDICATIONS

Here's a list of recommended sites for detailed drug information: Free Drug Information Resources - Drug Information - Research Guides at Purdue University Libraries

Have you heard of the Beers Criteria for Potentially Inappropriate Medication Use in Older Adults? This list helps healthcare providers to safely prescribe medications for people above age 65. It is used as a guide to do no harm. The American Geriatrics Society revises this list every three years. American Geriatrics Society 2023 updated AGS Beers Criteria® for potentially inappropriate medication use in older adults (wiley.com)

WHERE TO GO FOR MORE INFORMATION

Alzheimer's Association. (2024). Daily routines can be helpful for both caregivers and the person living with Alzheimer's. A planned day allows you to spend less time trying to figure out what to do, and more time on activities that provide meaning and enjoyment. https://www.alz.org/help-support/caregiving/daily-care/activities

Guiding an Improved Dementia Experience (GUIDE) Model of Care: https://www.cms.gov/priorities/innovation/innovation-models/guide The GUIDE Model focuses on dementia care management and aims to improve quality of life for people living with dementia, reduce strain on their unpaid caregivers, and enable people living with dementia to remain in their homes and communities. It will achieve these goals through a comprehensive package of care coordination and care management, caregiver education and support, and respite services.

Mace., N., & Rabins, P. (2021). The 36-Hour Day: A Family Guide to Caring for People Who Have Alzheimer Disease and Other Dementias. Johns Hopkins Press. https://www.amazon.com/36-Hour-Day-Alzheimer-Disease-Dementias/dp/1421441713 Written by experts with decades of experience caring for individuals with memory loss, Alzheimer's, and other dementias, the book is widely known for its authoritativeness and compassionate approach to care. It features everything from the causes of dementia to managing its early stages to advice on caring for those in the later stages of the disease.

SCHOLARLY RESOURCES

Albert, S.C., Martinell, E., & Pessoa, C. (2022). Dementia and its impacts on the intimate, sexual couple relationship: A systematic review of qualitative research studies. *Dementia*, *21*(4):1449-1466. doi:10.1177/14713012211073205

Britt, K. C., Boateng, A. C. O., Zhao, H., Ezeokonkwo, F. C., Federwitz, C., & Epps, F. (2023). Spiritual needs of older adults living with dementia: An integrative review. *Healthcare (Basel, Switzerland), 11*(9), 1319. https://doi.org/10.3390/healthcare11091319

Dhana, K., Agarwal, P., & James, B. D., et al. (2024). Healthy lifestyle and cognition in older adults with common neuropathologies of dementia. *JAMA Neurology, 81*(3), 233–239. doi:10.1001/jamaneurol.2023.5491 This study found that in older adults, a healthy lifestyle may provide a cognitive reserve to maintain cognitive abilities independently of common neuropathologies of dementia. https://jamanetwork.com/journals/jamaneurology/article-abstract/2814688?widget=personalizedcontent&previousarticle=2816803

Jutkowitz, E., Pizzi, L. T., Shewmaker, P., Alarid-Escudero, F., Epstein-Lubow, G., Prioli, K. M., Gaugler, J. E., & Gitlin, L. N. (2023). Cost effectiveness of non-drug interventions that reduce nursing home admissions for people living with dementia. *Alzheimer's & Dementia : The Journal of the Alzheimer's Association, 19*(9), 3867–3893. Dementia-care interventions that reduce nursing home admissions save societal costs compared to usual care. Policies should incentivize providers and health systems to implement non-pharmacologic interventions. https://pubmed.ncbi.nlm.nih.gov/37021724/

Karkou, V., Aithal, S., Richards, M., Hiley, E., & Meekums, B. (2023). Dance movement therapy for dementia. *The Cochrane Database of Systematic Reviews, 8*(8), CD011022. https://doi.org/10.1002/14651858.CD011022.pub3

Laver, K., Dyer, S., & Whitehead, C., et al. (2016). Interventions to delay functional decline in people with dementia: A systematic review of systematic reviews. *BMJ Open, 6,* e010767. doi: 10.1136/bmjopen-2015-010767 This overview of systematic reviews concludes that healthcare professionals should ensure that people with dementia are encouraged to exercise and that primary carers are trained and supported to provide safe and effective care for the person with dementia. Acetylcholinesterase inhibitors or memantine should be trialed unless contraindicated. https://pubmed.ncbi.nlm.nih.gov/37021724/

Liu, Q., Wang, F., Tan, L., Liu, L., Cheng, H. & Hu, X. (2023). Comparative efficacy of various art therapies for patients with dementia: A network meta-analysis of randomized controlled trials. *Frontiers in Psychiatry*, 14, 1072066. doi: 10.3389/fpsyt.2023.1072066

Livingston, G., Huntley, J., Sommerlad, A., Ames, D., Ballard, C., Banerjee, S., Brayne, C., Burns, A., Cohen-Mansfield, J., Cooper, C., Costafreda, S. G., Dias, A., Fox, N., Gitlin, L. N., Howard, R., Kales, H. C., Kivimäki, M., Larson, E. B., Ogunniyi, A., Orgeta, V., … Mukadam, N. (2020). Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. *Lancet (London, England)*, *396*(10248), 413–446. https://www.thelancet.com/action/showPdf?pii=S0140-6736%2820%2930367-6

Luo, J., Beam, C. R., & Gatz, M. (2023). Is stress an overlooked risk factor for dementia? A systematic review from a lifespan developmental rerspective. *Prevention Science : The Official Journal of the Society for Prevention Research, 24*(5), 936–949. https://doi.org/10.1007/s11121-022-01385-1

Luo, G., Zhang, J., Song, Z., Wang, Y., Wang, X., Qu, H., Wang, F., Liu, C., & Gao, F. (2023). Effectiveness of non-pharmacological therapies on cognitive function in patients with dementia-A network meta-analysis of randomized controlled trials. *Frontiers in Aging Neuroscience*, *15*, 1131744. In this study, NPTs have excellent potential to improve cognition in people with dementia, and photobiomodulation may have more significant benefits in improving cognition than the other four non-pharm therapies. Frontiers | Effectiveness of non-pharmacological therapies on cognitive function in patients with dementia—A network meta-analysis of randomized controlled trials (frontiersin.org)

Mansour, H., Whitty, E., & Aguirre, E., Palomo, M., Charlesworth, G., Ramjee, S., Poppe, M., et al. (2020). Effectiveness of lifestyle and psychosocial interventions in reducing cognitive decline in older people: Systematic review: Dementia care research: Behavioral interventions. *Alzheimer's & Dementia, 16*, 10.1002/alz.042843.

Package of interventions for rehabilitation. (2023). Module 3. Neurological conditions. Geneva: World Health Organization; License: CC BY-NC-SA 3.0 IGO. https://iris.who.int/bitstream/handle/10665/370504/9789240071131-eng.pdf?sequence=1

Pappadà, A., Chattat, R., Chirico, I., Valente, M., & Ottoboni, G. (2021). Assistive technologies in dementia care: An updated analysis of the literature. *Frontiers in Psychology, 12*, 644587. https://doi.org/10.3389/fpsyg.2021.644587

Parker, L. J., Marx, K. A., Nkimbeng, M., Johnson, E., Koeuth, S., Gaugler, J. E., & Gitlin, L. N. (2023). It's more than language: cultural adaptation of a proven dementia care intervention for Hispanic/Latino Caregivers. *The Gerontologist, 63*(3), 558–567. https://doi.org/10.1093/geront/gnac120

Risk Reduction of Cognitive Decline and Dementia: WHO Guidelines. (2019). Geneva: World Health Organization.
The WHO Guidelines on risk reduction of cognitive decline and dementia provide evidence-based recommendations on lifestyle behaviors and interventions to delay or prevent cognitive decline and dementia. Worldwide, around 50 million people have dementia and, with one new case every three seconds, the number of people with dementia is set to triple by 2050. The increasing numbers of people with dementia, its significant social and economic impact and lack of curative treatment, make it imperative for countries to focus on reducing modifiable risk factors for dementia. Available from: https://www.ncbi.nlm.nih.gov/books/NBK542796/

Sebalj, M., Lakhani, A., Grindrod, A., & Stuckey, R. (2024). Equine-assisted services for people living with dementia: A systematic review. *Alzheimer's Research & Therapy, 16*(1), 76. https://doi.org/10.1186/s13195-024-01453-4

Scales, K., Zimmerman, S., & Miller, S. J. (2018). Evidence-based nonpharmacological practices to address behavioral and psychological symptoms of dementia. *The Gerontologist*, *58*(suppl_1), S88–S102. Nonpharmacological practices are person-centered, and their selection can be informed by considering the cause and meaning of the individual's behavioral and psychological symptoms. Family caregivers and paid care providers can implement evidence-based practices in home or residential care settings, although some practices require the development of more specific protocols if they are to become widely used in an efficacious manner. https://doi.org/10.1093/geront/gnx167

Shim, M., Tilley, J. L., Im, S., Price, K., & Gonzalez, A. (2021). A systematic review of mindfulness-based interventions for patients with mild cognitive impairment or dementia and caregivers. *Journal of Geriatric Psychiatry and Neurology, 34*(6), 528–554. https://doi-org.hoover2.mcdaniel.edu:2443/10.1177/0891988720957104

Sikkes, S. A. M., Tang, Y., Jutten, R. J., Wesselman, L. M. P., Turkstra, L. S., Brodaty, H., Clare, L., Cassidy-Eagle, E., Cox, K. L., Chételat, G., Dautricourt, S., Dhana, K., Dodge, H., Dröes, R. M., Hampstead, B. M., Holland, T., Lampit, A., Laver, K., Lutz, A., Lautenschlager, N. T., … Bahar-Fuchs, A. (2021). Toward a theory-based specification of non-pharmacological treatments in aging and dementia: Focused reviews and methodological recommendations. *Alzheimer's & Dementia : The Journal of the Alzheimer's Association, 17*(2), 255–270. https://doi.org/10.1002/alz.12188 The evidence strongly supports various NPTs in relation to their primary targets, and the authors discuss opportunities and challenges associated with a unifying theoretical framework to guide future efforts in this area.

Soilemezi, D., Drahota, A., Crossland, J., & Stores, R. (2019).The role of the home environment in dementia care and support: Systematic review of qualitative research. *Dementia, 18(*4):1237-1272. doi:10.1177/1471301217692130

Tao, P., Xu, W., Gu, S., Shi, H., Wang, Q., & Xu, Y. (2022). Traditional Chinese medicine promotes the control and treatment of dementia. *Frontiers in Pharmacology, 13*, 1015966. https://doi.org/10.3389/fphar.2022.1015966

Watt, J. A., Thompson, W., Marple, R., Brown, D., & Liu, B. (2022). Managing neuropsychiatric symptoms in patients with dementia. *BMJ, 376,* e069187 doi:10.1136/bmj-2021-069187 https://www.bmj.com/content/376/bmj-2021-069187

This puzzle is a word search puzzle that has a hidden message in it. First find all the words on the list. Words can go in any direction and share letters as well as cross over each other. Once you find all the words, copy the unused letters starting in the top left corner into the blanks on the next page to reveal the hidden message.

W E R O H P A T E M T H A T C
A N N T C A T O H H N T R O L
S O T H N H E W T I T N D B U
E I T D I D E T U B I R T T A
G T T S P A R T O N W F E C A
N I N A E D J G U S T I O T T
E D H E S C N A I F L D S R O
L N E B R I N G S L O O T Z G
L O L M T V E A Y U S L Z F M
A C Y P E T N E T F O L R O O
H R A E O N E H T R X Y T D B
C D M U E H T T F E O I B M Q
A E Q E K D R I U W V P O N O
C H A N G E S I A O F W M M I
R T S E Z I S A H P M E Z I N

adapting	the	and	Attributed
bring	the	challenges	changes
condition	the	dementia	Dolly
emphasizes	This	for	importance
in	he	is	It
may	to	metaphor	of
of	to	often	Parton
powerful		quote	that

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___ ___ ___ ___ , ___ ___ ___ ___ ___ ___ ___ ___ ___

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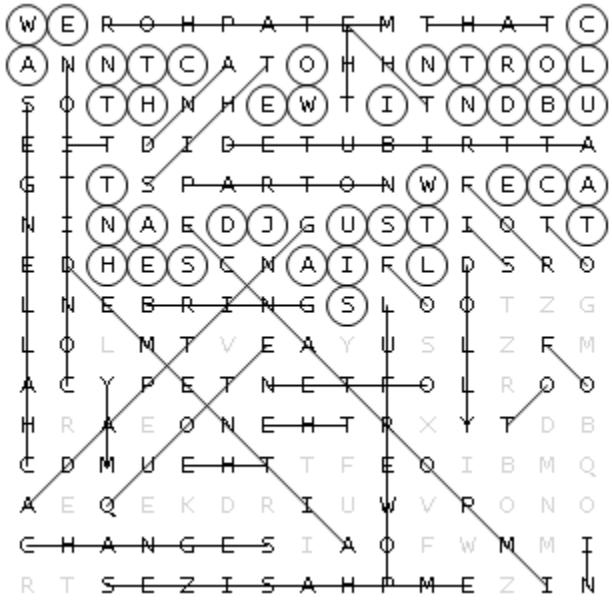
NOTES:

Answer to puzzle: **We Can’t Control the Wind, but We Can Adjust the Sails**



UNIVERSITY of MARYLAND GRADUATE SCHOOL

Geriatrics and Gerontology Education and Research

MISSION

The Geriatrics & Gerontology Education and Research Program

is a University of Maryland, Baltimore-based program that facilitates interprofessional education and interdisciplinary research activities in the field of aging in partnership with campus affiliates and agencies and organizations serving Maryland's older adults and their caregivers.

VISION Optimize care provided to older adults to promote quality of life through education, research, and training.

CORE VALUES

Accountability	Excellence
Civility	Diversity
Leadership	Knowledge
Collaboration	

Whether you want to make an impact directly by working with older adults and their families or indirectly through research, changing policy, or developing innovative technology to tackle the complex health and social challenges associated with growing older, a graduate degree from UMB is a great place to start.

Programs such as our graduate certificate in Aging & Applied Thanatology, our Master's in Gerontology, and our PhD in Gerontology are designed to help you meet your career goals. Visit our website for a complete list of academic programs.
Geriatrics and Gerontology Education and Research Program - UMB: An Age-Friendly University (umaryland.edu)

The Graduate School is home to the Geriatrics & Gerontology Education and Research (GGEAR) program. Educational programs developed by GGEAR and its partners include online training modules through Geri-ED and interprofessional training opportunities such as the Geriatric Assessment Interdisciplinary Team (GAIT) program, in which students learn and work collaboratively in interprofessional settings.

For more information about the GGEAR Program or our offerings, please contact Diane Martin, Ph.D., Director, at diane.martin@umaryland.edu or 410-706-4327.

Spring 2024 "Navigating Dementia" Education Series Dates

Participant Registration Form

FOR WEBINARS, THE ZOOM LINK OPENS 30 MINUTES BEFORE THE START OF THE WEBINAR.
For example, webinar 1 opens at 12:30pm and begins promptly at 1:00pm.

Webinar 1: Friday, March 1, 2024 (12:30pm-3:00pm): Understanding Cognitive Aging: Differentiating Between Usual and Unusual Changes in Memory

Webinar 2: Friday, March 8, 2024 (12:30pm-3:00pm): Understanding Dementia: Differentiating Reversible and Irreversible Causes

In-Person Conference 1: Friday, March 22, 2024 (8:30am-4:00pm)The Meeting House, Columbia, MD: Health Literacy and Plain Language Communication in Alzheimer's and Related Dementia

Webinar 3: Friday, April 19, 2024 (12:30-3:00pm): Exploring Medical and Non-medical Interventions to Slow Cognitive Decline Associated with ADRD

Webinar 4: Wednesday, April 24, 2024 (tbd): Spectrum of Services & Supports in Maryland for Persons Living with Dementia (note: this webinar will be one of several offered during the annual caregiver's conference webinar hosted by Eastern Shore MAC, Inc. More information will be provided to individuals registering for this webinar held April 24 from 8:30am-3:00pm)

In-person Conference 2: Friday, May 10, 2024 (8:30am-4:00pm)The Meeting House, Columbia, MD: Assessment Tools Workshop: Tools & Referrals for Non-Clinicians

Webinar 5: Friday, May 24 (12:30pm-3:00pm): Empowering Caregivers: Essential Resources and Supports in Maryland

CEUs available at no-cost for Certified Dementia Practitioners, Certified Senior Advisors, Maryland Social Workers, and Maryland Psychologists and Mental Health Professionals. Certificate of Attendance will be provided to all participants.

Plus, you can earn your Age-Friendly Specialist Certificate by attending our series.
Visit https://www.umaryland.edu/media/umb/geriatric-programs/GGEAR-AFU-Brochure.pdf for more details.